


EASA	AIRWORTHINESS DIRECTIVE	
	<p>AD No.: 2010-0164</p> <p>Date: 05 August 2010</p> <p>Note: This Airworthiness Directive (AD) is issued by EASA, acting in accordance with Regulation (EC) No 216/2008 on behalf of the European Community, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of that Regulation.</p>	
<p>This AD is issued in accordance with EC 1702/2003, Part 21A.3B. In accordance with EC 2042/2003 Annex I, Part M.A.301, the continuing airworthiness of an aircraft shall be ensured by accomplishing any applicable ADs. Consequently, no person may operate an aircraft to which an AD applies, except in accordance with the requirements of that AD unless otherwise specified by the Agency [EC 2042/2003 Annex I, Part M.A.303] or agreed with the Authority of the State of Registry [EC 216/2008, Article 14(4) exemption].</p>		
<p>Type Approval Holder's Name :</p> <p>AIRBUS</p>		<p>Type/Model designation(s) :</p> <p>A318, A319, A320 and A321 aeroplanes</p>
TCDS Number :	EASA.A.064	
Foreign AD :	Not applicable	
Supersedure :	This AD supersedes EASA AD 2009-0141 dated 02 July 2009.	
ATA 55		
Stabilizers – Rudder Side Shell Skin – Inspection		
Manufacturer(s):	Airbus (formerly Airbus Industrie)	
Applicability:	<p>AIRBUS A318-111, A318-112, A318-121, A318-122, A319-111, A319-112, A319-113, A319-114, A319-115, A319-131, A319-132, A319-133, A320-111, A320-211, A320-212, A320-214, A320-215, A320-216, A320-231, A320-232, A320-233, A321-111, A321-112, A321-131, A321-211, A321-212, A321-213, A321-231 and A321-232 aeroplane models, all manufacturer serial numbers, if equipped with rudders having part numbers (P/N) and serial numbers (S/N) as listed in Appendix A, B, C, D, or E to this AD.</p>	
Reason:	<p>Surface defects were visually detected on the rudder of one A319 and one A321 in-service aeroplane.</p> <p>Investigation has determined that the defects reported on both rudders corresponded to areas that had been reworked in production. The investigation confirmed that the defects were a result of de-bonding between the skin and honeycomb core.</p> <p>An extended de-bonding, if not detected and corrected, may degrade the structural integrity of the rudder. The loss of the rudder leads to degradation of the handling qualities and reduces the controllability of the aeroplane.</p> <p>EASA AD 2009-0141 required inspections of specific areas and, when necessary, the application of corrective actions for those rudders where production reworks have been identified.</p> <p>This AD retains the requirements of EASA AD 2009-0141 (addressing the populations of rudders affected by AOT A320-55-1038), which is superseded, and requires:</p>	

	<p>- a local ultrasonic inspection for reinforced area instead of the local thermography inspection, which is maintained for non-reinforced areas, and</p> <p>- additional work performance for rudders on which this thermography inspection has been performed in the reinforced area, and</p> <p>- additional work performance for some rudders on which an additional area requiring inspections is defined.</p> <p>This AD also addresses the populations of rudders affected by AOT A320-55-1039 and Airbus SB A320-55-1035, A320-55-1036 and A320-55-1037 which were not included in EASA AD 2009-0141.</p>
Effective Date:	19 August 2010
Required Action(s) and Compliance Time(s):	<p>Required as indicated:</p> <p>(1) <u>For rudders with a honeycomb core density of 24 kg/m³ as identified in Appendix A to this AD, apply the following actions for the locations defined in Airbus All Operators Telex (AOT) A320-55A1038 Revision 02:</u></p> <p>(1.1) Reinforced area location:</p> <p>Unless already accomplished, within 200 days from 16 July 2009 [effective date of AD 2009-0141], perform Vacuum Loss inspection on the rudder reinforced area in accordance with instructions defined in Airbus AOT A320-55A1038 Revision 02.</p> <p>(1.2) Trailing edge area location:</p> <p>(1.2.1) Unless already accomplished, within 20 months from 16 July 2009 [effective date of AD 2009-0141], perform Elasticity Laminate Checker inspection on the rudder trailing edge area in accordance with instructions defined in Airbus AOT A320-55A1038 Revision 02.</p> <p>(1.2.2) Repeat two further times the inspection defined in paragraph (1.2.1) of this AD at intervals not to exceed 4 500 flight cycles (FC) but not less than 4 000 FC from the last inspection.</p> <p>(1.3) Other areas locations (splice/lower rib/upper edge/leading edge/other locations):</p> <p>(1.3.1) Unless already accomplished, within 200 days from 16 July 2009 [effective date of AD 2009-0141], perform Elasticity Laminate Checker inspection on the other areas (splice/lower rib/upper edge/leading edge/other locations) in accordance with instructions defined in Airbus AOT A320-55A1038 Revision 02.</p> <p>(1.3.2) Repeat the inspection defined in paragraph (1.3.1) of this AD at intervals not exceeding 1 500 FC or 200 days from the last inspection, whichever occurs first.</p> <p>(1.3.3) Unless already accomplished, within 20 months from 16 July 2009 [effective date of AD 2009-0141], perform Vacuum Loss inspection on these areas (lower rib/upper edge/leading edge/other locations) in accordance with instructions defined in Airbus AOT A320-55A1038 Revision 02.</p> <p>(1.3.4) Accomplishment of the inspection required by paragraph (1.3.3) cancels the initial and repetitive inspections required by paragraph (1.3.1) and (1.3.2) of this AD.</p>

- (1.4) In case of findings during the inspections defined in paragraphs (1.1), (1.2) or (1.3) of this AD, before next flight, contact Airbus to get further instructions and apply the associated instructions and corrective actions in accordance with the approved data provided.
- (1.5) In case of no findings during the inspection defined in paragraphs (1.1) and (1.3.3) of this AD, before next flight, restore the vacuum loss holes as per the option selected (temporary restoration with self adhesive patches, temporary restoration with resin or permanent restoration), in accordance with Airbus AOT A320-55A1038 Revision 02 and apply the associated instructions until performance of permanent restoration.
- (1.6) Within 10 days after accomplishment of each inspection in accordance with paragraphs (1.1), (1.2) or (1.3) of this AD, report the inspection results, including no findings, to Airbus.

(2) For rudders not having a honeycomb core density of 24 kg/m³ as identified in Appendix A to this AD, apply the following actions for the locations defined in Airbus AOT A320-55A1038 Revision 02:

For the purpose of the paragraph (2), a Reference Date is 16 July 2009 [effective date of AD 2009-0141] or the date when the rudder will accumulate 20 000 FC from its first installation on an aeroplane, whichever occurs later.

- (2.1) Reinforced area location:
Unless already accomplished, within 200 days from the Reference Date, perform Vacuum Loss inspection on the rudder reinforced area in accordance with instructions defined in Airbus AOT A320-55A1038 Revision 02.
- (2.2) Trailing edge area location:
(2.2.1) Unless already accomplished, within 20 months from the Reference Date, perform Elasticity Laminate Checker inspection on the rudder trailing edge area in accordance with instructions defined in Airbus AOT A320-55A1038 Revision 02.
(2.2.2) Repeat two further times the inspection defined in paragraph (2.2.1) of this AD at intervals not to exceed 4 500 FC but not less than 4 000 FC from the last inspection.
- (2.3) Other areas locations (splice/lower rib/upper edge/leading edge/other locations):
(2.3.1) Unless already accomplished, within 200 days from the Reference Date, perform Elasticity Laminate Checker inspection on the other areas (splice/lower rib/upper edge/leading edge/other locations) in accordance with instructions defined in Airbus AOT A320-55A1038 Revision 02.
(2.3.2) Repeat the inspection defined in paragraph (2.3.1) of this AD at intervals not exceeding 1 500 FC or 200 days from the last inspection, whichever occurs first.
(2.3.3) Unless already accomplished, within 20 months from the

	<p>Reference Date, perform Vacuum Loss inspection on these areas (lower rib/upper edge/leading edge/other locations) in accordance with instructions defined in Airbus AOT A320-55A1038 Revision 02.</p> <p>(2.3.4) Accomplishment of the inspection required by paragraph (2.3.3) of this AD cancels the initial and repetitive inspections required by paragraph (2.3.1) and (2.3.2) of this AD.</p> <p>(2.4) In case of findings during the inspections defined in paragraphs (2.1), (2.2) or (2.3) of this AD, before next flight, contact Airbus to get further instructions and apply the associated instructions and corrective actions in accordance with the approved data provided.</p> <p>(2.5) In case of no findings during the inspection defined in paragraphs (2.1) and (2.3.3) of this AD, before next flight, restore the vacuum loss holes as per the option selected (temporary restoration with self adhesive patches, temporary restoration with resin or permanent restoration), in accordance with Airbus AOT A320-55A1038 Revision 02 and apply the associated instructions until performance of permanent restoration.</p> <p>(2.6) Within 10 days after accomplishment of each inspection in accordance with paragraphs (2.1), (2.2) or (2.3) of this AD, report the results, including no findings, to Airbus.</p> <p>(3) All rudders that have passed the inspection, before 16 July 2009 [effective date of AD 2009-0141], in accordance with the instructions of Airbus AOT A320-55A1038 at original issue or Sampling instruction Technical Disposition (TD) ref. TD/K4/S2/27051/2009 issue B (applicable only to rudder S/N TS-1536, having P/N D554 71000 020 00), are compliant with the associated requirements of paragraph (1) or (2) of this AD for the areas inspected. Additional areas requiring inspection are defined in AOT A320-55A1038 at Revision 01 or Revision 02. For these additional areas the requirements of paragraphs (1) or (2) of this AD are applicable. For all areas, the repetitive inspections required by paragraphs (1) or (2) of this AD remain applicable.</p> <p>(4) All rudders that have passed the inspection, before the effective date of this AD, in accordance with the instructions of Airbus AOT A320-55A1038 Revision 01, are compliant with the associated requirements of paragraph (1) or (2) of this AD for the areas inspected. Additional areas requiring inspection are defined in AOT A320-55A1038 at Revision 02. For these additional areas the requirements of paragraphs (1) or (2) of this AD are applicable. For all areas, the repetitive inspections required by paragraphs (1) or (2) of this AD remain applicable.</p> <p>(5) For rudders on which temporary vacuum loss hole restoration with resin or permanent vacuum loss hole restoration has been performed before the effective date of this AD in reinforced area as per paragraph (1.5) or (2.5) of this AD, within 4500 FC from restoration date perform an ultrasonic inspection in accordance with the instructions of Airbus AOT A320-55A1038 Revision 02.</p> <p>(6) For rudders listed in Appendix B to this AD, apply the following</p>
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actions for the locations defined in Airbus AOT A320-55A1039:

For the purpose of the paragraph (6), a Reference Date of this AD is the effective date of this AD or the date when the rudder will accumulate 20 000 FC from its first installation on the aeroplane, whichever occurs later,

(6.1) Unless already accomplished, within 20 months from the effective date of this AD or within 200 days from the Reference Date of this AD, whichever occurs first, and depending on the location defined in Airbus AOT A320-55A1039, perform X-Ray and/or Elasticity Laminate Checker (ELCh) and/or vacuum loss and/or thermography inspections, as applicable to rudder P/N and S/N, in accordance with the instructions of paragraph 4.2.2.1.1. of this Airbus AOT A320-55A1039.

(6.2) Within 10 days after the accomplishment of the inspections required by paragraph (6.1) of this AD, send the developed X-Ray films and the film layout arrangement to Airbus.

(6.3) Within 1500 Flight Cycles or 200 days after the accomplishment of the requirements of paragraph (6.1) of this AD, which ever occurs first, as applicable to rudder P/N and S/N:

(6.3.1) Trailing edge area location:

(6.3.1.1) Perform ELCh inspection on the rudder **trailing edge area** in accordance with instructions of paragraph 4.2.2.1.2. of this Airbus AOT A320-55A1039.

(6.3.1.2) In case of no findings, repeat two further times the inspection defined in paragraph (6.3.1.1) of this AD at intervals not to exceed 4 500 FC but not less than 4 000 FC from the last inspection.

(6.3.2) Other areas location (lower rib/upper edge/leading edge/other locations): Perform a vacuum loss inspection on the other areas in accordance with instructions of paragraph 4.2.2.1.2. of Airbus AOT A320-55A1039.

(6.4) In case of findings during the inspections defined in paragraph (6.1) and (6.3) of this AD, before next flight, contact Airbus for further instructions and apply the associated instructions and corrective actions in accordance with the approved data provided.

(6.5) In case of no findings during the vacuum loss inspection defined in paragraphs (6.1) and (6.3.2) of this AD, before next flight, restore the vacuum loss holes as per the option selected (temporary restoration with self adhesive patches, temporary restoration with resin or permanent restoration) in accordance with Airbus AOT A320-55A1039 and apply the associated instructions until performance of permanent restoration.

(6.6) Within 10 days after accomplishment of each inspection in accordance with paragraphs (6.1) and (6.3) of this AD, report the results, including no findings, to Airbus.

(7) **For rudders listed in Appendix C to this AD apply the following actions for the locations defined in Airbus AOT A320-55A1039:**

For the purpose of the paragraph (7), a Reference Date of this AD is the effective date of this AD or the date when the rudder will accumulate 20 000 FC from its first installation on the aeroplane, whichever occurs later,

(7.1) For rudders with a honeycomb core density of 24 kg/m³ as identified in Appendix C to this AD, within 200 days from the effective date of this AD, replace the affected rudder in accordance with the instructions of Airbus AOT A320-55A1039.

(7.2) For rudders not having a honeycomb core density of 24 kg/m³ as identified in Appendix C to this AD, within 20 months from the effective date of this AD or 200 days from the Reference Date of this AD, whichever occurs first, replace the affected rudder in accordance with the instructions of Airbus AOT A320-55A1039.

(8) **For rudders whose P/N and S/N are listed in the Appendix D to this AD, apply the following actions for the locations defined in Airbus Service Bulletin (SB) A320-55-1035 Revision 01, or Airbus SB A320-55-1036 Revision 01, or Airbus SB A320-55-1037 Revision 01, as applicable to aeroplane model :**

(8.1) Reinforced area location:

Unless already accomplished, within the compliance time specified in paragraph (8.1.1) or (8.1.2) below, whichever occurs later of § (8.1.1) or (8.1.2), perform Vacuum Loss inspection on the rudder reinforced area in accordance with instructions defined in Airbus SB A320-55-1035 Revision 01, or Airbus SB A320-55-1036 Revision 01, or Airbus SB A320-55-1037 Revision 01, as applicable to aeroplane model :

(8.1.1) Before the rudder accumulates 17 000 FC since its first installation, without exceeding 20 months from the effective date of this AD, or

(8.1.2) Within 200 days after the effective date of this AD.

(8.2) Trailing edge area location:

(8.2.1) Unless already accomplished, within 20 months after the effective date of this AD, perform Elasticity Laminate Checker inspection on the rudder trailing edge area in accordance with instructions defined in Airbus SB A320-55-1035 Revision 01, or Airbus SB A320-55-1036 Revision 01, or Airbus SB A320-55-1037 Revision 01, as applicable to aeroplane model.

(8.2.2) Repeat two further times the inspection defined in paragraph (8.2.1) of this AD at intervals not to exceed 4 500 FC but not less than 4 000 FC from the last inspection.

(8.3) Other areas locations (splice/lower rib/upper edge/leading edge/other locations):

(8.3.1) Unless already accomplished, within the compliance time specified in paragraph (8.3.1.1) or (8.3.1.2) below, whichever occurs later of the § (8.3.1.1) or (8.3.1.2), perform Elasticity

	<p>Laminate Checker inspection on the other areas (splice/lower rib/upper edge/leading edge/other locations) in accordance with instructions defined in Airbus SB A320-55-1035 Revision 01, or Airbus SB A320-55-1036 Revision 01, or Airbus SB A320-55-1037 Revision 01, as applicable to aeroplane model :</p> <p>(8.3.1.1) Before the rudder accumulates 17 000 FC since its first installation, without exceeding 20 months from the effective date of this AD, or</p> <p>(8.3.1.2) Within 200 days after the effective date of this AD.</p> <p>(8.3.2) Repeat the inspection defined in paragraph (8.3.1) of this AD at intervals not exceeding 1 500 FC or 200 days from the last inspection, whichever occurs first.</p> <p>(8.3.3) Unless already accomplished, within 20 months after the effective date of this AD, perform Vacuum Loss inspection on these areas (lower rib/upper edge/leading edge/other locations) in accordance with instructions defined in Airbus SB A320-55-1035 Revision 01, or Airbus SB A320-55-1036 Revision 01, or Airbus SB A320-55-1037 Revision 01, as applicable to aeroplane model.</p> <p>(8.3.4) Accomplishment of the inspection required by paragraph (8.3.3) cancels the initial and repetitive inspections required by paragraph (8.3.1) and (8.3.2) of this AD.</p> <p>(8.4) In case of findings during the inspections defined in paragraphs (8.1), (8.2) or (8.3) of this AD, before next flight, contact Airbus to get further instructions and apply before next flight the associated instructions and corrective actions in accordance with the approved data provided.</p> <p>(8.5) In case of no findings during the inspection defined in paragraphs (8.1) and (8.3.3) of this AD, before next flight, restore the vacuum loss holes as per the option selected (temporary restoration with self adhesive patches, temporary restoration with resin or permanent restoration), in accordance with Airbus SB A320-55-1035 Revision 01, or Airbus SB A320-55-1036 Revision 01, or Airbus SB A320-55-1037 Revision 01, as applicable to aeroplane model, and apply the associated instructions until performance of permanent restoration.</p> <p>(8.6) Within 10 days after accomplishment of each inspection in accordance with paragraphs (8.1), (8.2) or (8.3) of this AD, report the inspection results, including no findings, to Airbus.</p> <p>(8.7) Aeroplanes inspected or restored in accordance with the instructions of Airbus SB A320-55-1035 at original issue, or Airbus SB A320-55-1036 at original issue, or Airbus SB A320-55-1037 at original issue prior to the effective date of this AD, are compliant with the requirements of paragraph (8) of this AD for the inspected area. For all areas, the repetitive inspections required by paragraph (8) of this AD remain applicable.</p> <p>(9) <u>For rudders whose P/N and S/N are listed in the Appendix E to this AD, apply the following actions for the locations defined in Airbus SB A320-55-1035 Revision 01, or Airbus SB A320-55-1036 Revision 01, or Airbus SB A320-55-1037 Revision 01, as applicable to</u></p>
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	<p><u>aeroplane model :</u></p> <p>(9.1) Unless already accomplished, within 4500 FC but not less than 4 000 FC from the sampling inspection, perform Elasticity Laminate Checker inspection on the rudder trailing edge area in accordance with instructions defined in Airbus SB A320-55-1035 Revision 01, or Airbus SB A320-55-1036 Revision 01, or Airbus SB A320-55-1037 Revision 01, as applicable to aeroplane model.</p> <p>(9.2) Repeat once the inspection defined in paragraph (9.1) of this AD at intervals not to exceed 4 500 FC but not less than 4 000 FC from the last inspection.</p> <p>(9.3) In case of findings during the inspections defined in paragraphs (9.1) or (9.2) of this AD, before next flight, contact Airbus to get further instructions and apply before next flight the associated instructions and corrective actions in accordance with the approved data provided.</p> <p>(9.4) Within 10 days after accomplishment of each inspection in accordance with paragraphs (9.1), (9.2) or (9.3) of this AD, report the inspection results, including no findings, to Airbus.</p> <p>(9.5) Aeroplanes inspected or restored in accordance with the instructions of Airbus SB A320-55-1035 at original issue, or Airbus SB A320-55-1036 at original issue, or Airbus SB A320-55-1037 at original issue prior to the effective date of this AD, are compliant with the requirements of paragraph (9) of this AD for the inspected area. For all areas, the repetitive inspections required by paragraph (9) of this AD remain applicable.</p> <p>(10) After the effective date of this AD, do not install any rudder listed in Appendix A or B or C or D or E to this AD on an aeroplane, unless in compliance with the requirements of this AD.</p>
Ref. Publications:	<p>Airbus All Operators Telex A320-55A1038 Revision 02. Airbus All Operators Telex A320-55A1039 at original issue Airbus Service Bulletin A320-55-1035 at original issue Airbus Service Bulletin A320-55-1036 at original issue Airbus Service Bulletin A320-55-1037 at original issue Airbus Technical Disposition ref. TD/K4/S2/27051/2009 issue B.</p> <p>The use of later approved revisions of these documents is acceptable for compliance with the requirements of this AD.</p>
Remarks:	<ol style="list-style-type: none"> 1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD. 2. The required actions and the risk allowance have granted the issuance of a Final AD with Request for Comments, postponing the public consultation process after publication. 3. Enquiries regarding this AD should be referred to the Airworthiness Directives, Safety Management & Research Section, Certification Directorate, EASA. E-mail: ADs@easa.europa.eu. 4. For any question concerning the technical content of the requirements in this AD, please contact: AIRBUS – Airworthiness Office – EAS; Fax +33 5 61 93 44 51; E-mail: account.airworth-eas@airbus.com.

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Rudder P/N	Affected rudder S/N	Core density of 24 kg/m ³
D554 71000 010 00	TS-1069	X
D554 71000 010 00	TS-1090	X
D554 71000 012 00	TS-1227	X
D554 71000 014 00	TS-1350	
D554 71000 014 00	TS-1366	
D554 71000 014 00	TS-1371	
D554 71000 014 00	TS-1383	
D554 71000 014 00	TS-1387	
D554 71000 016 00	TS-1412	
D554 71000 018 00	TS-1443	
D554 71000 018 00	TS-1444	
D554 71000 018 00	TS-1468	
D554 71000 020 00	TS-1480	
D554 71000 020 00	TS-1491	
D554 71000 020 00	TS-1494	
D554 71000 020 00	TS-1495	
D554 71000 020 00	TS-1498	
D554 71000 020 00	TS-1499	
D554 71000 020 00	TS-1500	
D554 71000 020 00	TS-1505	
D554 71000 020 00	TS-1506	
D554 71000 020 00	TS-1507	
D554 71000 020 00	TS-1509	
D554 71000 020 00	TS-1515	
D554 71000 020 00	TS-1528	
D554 71000 020 00	TS-1530	
D554 71000 020 00	TS-1532	
D554 71000 020 00	TS-1535	
D554 71000 020 00	TS-1536	
D554 71000 020 00	TS-1538	
D554 71001 000 00	TS-1537	
D554 71001 000 00	TS-1540	
D554 71001 000 00	TS-1541	
D554 71001 000 00	TS-1543	
D554 71001 000 00	TS-1548	
D554 71001 000 00	TS-1549	
D554 71001 000 00	TS-1551	
D554 71001 000 00	TS-1554	
D554 71001 000 00	TS-1555	
D554 71001 000 00	TS-1556	
D554 71001 000 00	TS-1557	
D554 71001 000 00	TS-1559	
D554 71001 000 00	TS-1562	
D554 71001 000 00	TS-1563	
D554 71001 000 00	TS-1564	
D554 71001 000 00	TS-1565	

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Rudder P/N	Affected rudder S/N	Core density of 24 kg/m ³
D554 71001 000 00	TS-1566	
D554 71001 000 00	TS-1567	
D554 71001 000 00	TS-1568	
D554 71001 000 00	TS-1569	
D554 71001 000 00	TS-1570	
D554 71001 000 00	TS-1573	
D554 71001 000 00	TS-1575	
D554 71001 000 00	TS-1578	
D554 71001 000 00	TS-1579	
D554 71001 000 00	TS-1580	
D554 71001 000 00	TS-1581	
D554 71001 000 00	TS-1582	
D554 71001 000 00	TS-1584	
D554 71001 000 00	TS-1593	
D554 71001 000 00	TS-1594	
D554 71001 000 00	TS-1596	
D554 71001 000 00	TS-1599	
D554 71001 000 00	TS-1603	
D554 71001 000 00	TS-1609	
D554 71001 000 00	TS-1621	
D554 71001 000 00	TS-1626	
D554 71001 000 00	TS-1627	
D554 71001 000 00	TS-1635	
D554 71001 000 00	TS-1637	
D554 71002 000 00	TS-2306	
D554 71002 000 00 0001	TS-2003	
D554 71002 000 00 0001	TS-2005	
D554 71002 000 00 0001	TS-2013	
D554 71002 000 00 0001	TS-2016	
D554 71002 000 00 0001	TS-2019	
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D554 71002 000 00 0001	TS-2022	
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D554 71002 000 00 0001	TS-2033	
D554 71002 000 00 0001	TS-2043	
D554 71002 000 00 0001	TS-2047	
D554 71002 000 00 0001	TS-2048	
D554 71002 000 00 0001	TS-2054	
D554 71002 000 00 0001	TS-2058	
D554 71002 000 00 0001	TS-2059	
D554 71002 000 00 0001	TS-2064	
D554 71002 000 00 0001	TS-2072	
D554 71002 000 00 0001	TS-2075	
D554 71002 000 00 0001	TS-2076	
D554 71002 000 00 0001	TS-2079	

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Rudder P/N	Affected rudder S/N	Core density of 24 kg/m ³
D554 71002 000 00 0001	TS-2083	
D554 71002 000 00 0001	TS-2089	
D554 71002 000 00 0002	TS-2090	
D554 71002 000 00 0002	TS-2095	
D554 71002 000 00 0002	TS-2103	
D554 71002 000 00 0002	TS-2116	
D554 71002 000 00 0002	TS-2122	
D554 71002 000 00 0002	TS-2133	
D554 71002 000 00 0002	TS-2142	
D554 71002 000 00 0002	TS-2147	
D554 71002 000 00 0002	TS-2157	
D554 71002 000 00 0002	TS-2158	
D554 71002 000 00 0002	TS-2162	
D554 71002 000 00 0002	TS-2167	
D554 71002 000 00 0002	TS-2174	
D554 71002 000 00 0002	TS-2176	
D554 71002 000 00 0002	TS-2181	
D554 71002 000 00 0002	TS-2189	
D554 71002 000 00 0002	TS-2191	
D554 71002 000 00 0002	TS-2203	
D554 71002 000 00 0002	TS-2205	
D554 71002 000 00 0002	TS-2207	
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D554 71002 000 00 0002	TS-2229	
D554 71002 000 00 0002	TS-2233	
D554 71002 000 00 0002	TS-2241	
D554 71002 000 00 0002	TS-2246	
D554 71002 000 00 0002	TS-2249	
D554 71002 000 00 0002	TS-2270	
D554 71002 000 00 0002	TS-2275	
D554 71002 000 00 0002	TS-2289	
D554 71002 000 00 0002	TS-2290	
D554 71002 000 00 0002	TS-2294	
D554 71002 000 00 0002	TS-2309	
D554 71002 000 00 0002	TS-2347	
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D554 71002 000 00 0002	TS-2361	
D554 71002 000 00 0002	TS-2380	
D554 71002 000 00 0002	TS-2383	
D554 71002 000 00 0002	TS-2390	
D554 71002 000 00 0002	TS-2394	
D554 71002 000 00 0002	TS-2396	
D554 71002 000 00 0002	TS-2401	
D554 71002 000 00 0002	TS-2406	

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Rudder P/N	Affected rudder S/N	Core density of 24 kg/m ³
D554 71002 000 00 0002	TS-2461	
D554 71002 000 00 0002	TS-2468	
D554 71002 000 00 0002	TS-2516	
D554 71002 000 00 0002	TS-2537	
D554 71002 000 00 0002	TS-2543	
D554 71002 000 00 0002	TS-2546	
D554 71002 000 00 0002	TS-2619	
D554 71002 000 00 0002	TS-2684	
D554 71002 000 00 0003	TS-2752	
D554 71002 000 00 0003	TS-2869	
D554 71002 000 00 0003	TS-2876	
D554 71002 000 00 0003	TS-2970	
D554 71002 000 00 0003	TS-2971	
D554 71002 000 00 0003	TS-2987	
D554 71004 000 00 0000	TS-3083	
D554 71004 000 00 0000	TS-3197	

Appendix B

Rudder P/N	Affected rudder S/N
D554-71000-014-00	TS-1278
D554-71002-000-00-0001	TS-2081
D554-71002-000-00-0002	TS-2125
D554-71002-000-00-0002	TS-2129
D554-71002-000-00-0002	TS-2160
D554-71002-000-00-0002	TS-2201
D554-71002-000-00-0002	TS-2328
D554-71002-000-00-0002	TS-2425
D554-71002-000-00-0002	TS-2511
D554-71002-000-00-0003	TS-2768
D554-71002-000-00-0003	TS-2999
D554-71002-000-00-0003	TS-3004
D554-71002-000-00-0003	TS-3051
D554-71004-000-00-0001	TS-3288

Appendix C

Rudder P/N	Affected rudder S/N	Core density of 24 kg/m³
D554-71000-008-00	TS-1032	X
D554-71000-010-00	TS-1092	X
D554-71000-014-00	TS-1314	
D554-71000-018-00	TS-1445	
D554-71000-020-00	TS-1520	
D554-71002-000-00-0001	TS-2037	
D554-71002-000-00-0002	TS-2109	
D554-71002-000-00-0002	TS-2123	
D554-71002-000-00-0002	TS-2124	
D554-71002-000-00-0002	TS-2424	
D554-71002-000-00-0002	TS-2559	
D554-71002-000-00-0003	TS-3061	
D554-71004-000-00-0001	TS-3694	
D554-71004-000-00-0001	TS-3709	
D554-71004-000-00-0002	TS-4148	

Appendix D

Affected Rudder P/N
D5547100000000
D5547100000200
D5547100000400
D5547100000600
D5547100000800
D5547100001000
D5547100001200
D5547100001400
D5547100001600
D5547100001800
D5547100002000
D5547100100000
D5547100200000
D5547100300000
D5547100400000

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TS-1368	TS-1616	TS-2080	TS-2159	TS-2222	TS-2276	TS-2327
TS-1389	TS-1619	TS-2082	TS-2163	TS-2223	TS-2279	TS-2330
TS-1496	TS-1622	TS-2084	TS-2168	TS-2227	TS-2280	TS-2331
TS-1501	TS-1632	TS-2085	TS-2169	TS-2228	TS-2281	TS-2332
TS-1503	TS-1639	TS-2086	TS-2170	TS-2230	TS-2284	TS-2333
TS-1508	TS-2004	TS-2094	TS-2172	TS-2231	TS-2285	TS-2334
TS-1516	TS-2008	TS-2096	TS-2175	TS-2232	TS-2286	TS-2336
TS-1527	TS-2010	TS-2097	TS-2177	TS-2234	TS-2293	TS-2337
TS-1529	TS-2012	TS-2098	TS-2179	TS-2235	TS-2297	TS-2338
TS-1534	TS-2014	TS-2100	TS-2182	TS-2236	TS-2298	TS-2339
TS-1545	TS-2017	TS-2101	TS-2183	TS-2238	TS-2299	TS-2340
TS-1547	TS-2018	TS-2106	TS-2185	TS-2240	TS-2302	TS-2341
TS-1553	TS-2023	TS-2113	TS-2192	TS-2242	TS-2303	TS-2343
TS-1560	TS-2025	TS-2115	TS-2193	TS-2244	TS-2304	TS-2346
TS-1561	TS-2029	TS-2118	TS-2195	TS-2245	TS-2305	TS-2352
TS-1571	TS-2032	TS-2126	TS-2199	TS-2248	TS-2307	TS-2353
TS-1572	TS-2034	TS-2130	TS-2200	TS-2250	TS-2310	TS-2354
TS-1574	TS-2039	TS-2131	TS-2204	TS-2251	TS-2311	TS-2355
TS-1576	TS-2040	TS-2132	TS-2206	TS-2252	TS-2312	TS-2356
TS-1577	TS-2041	TS-2134	TS-2208	TS-2254	TS-2313	TS-2358
TS-1583	TS-2046	TS-2136	TS-2209	TS-2258	TS-2315	TS-2360
TS-1585	TS-2050	TS-2140	TS-2210	TS-2259	TS-2316	TS-2362
TS-1588	TS-2051	TS-2143	TS-2211	TS-2260	TS-2319	TS-2363
TS-1591	TS-2052	TS-2144	TS-2213	TS-2261	TS-2320	TS-2364
TS-1600	TS-2053	TS-2145	TS-2216	TS-2262	TS-2321	TS-2365
TS-1602	TS-2056	TS-2149	TS-2217	TS-2265	TS-2322	TS-2366
TS-1607	TS-2060	TS-2152	TS-2218	TS-2268	TS-2323	TS-2367
TS-1608	TS-2069	TS-2154	TS-2220	TS-2271	TS-2325	TS-2370
TS-1614	TS-2070	TS-2155	TS-2221	TS-2272	TS-2326	TS-2371

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TS-2372	TS-2483	TS-2583	TS-2665	TS-2743	TS-2813	TS-2878
TS-2373	TS-2484	TS-2584	TS-2666	TS-2744	TS-2814	TS-2879
TS-2374	TS-2486	TS-2585	TS-2667	TS-2745	TS-2815	TS-2880
TS-2377	TS-2488	TS-2586	TS-2668	TS-2747	TS-2816	TS-2881
TS-2381	TS-2491	TS-2587	TS-2671	TS-2749	TS-2818	TS-2882
TS-2382	TS-2493	TS-2590	TS-2674	TS-2751	TS-2819	TS-2885
TS-2387	TS-2494	TS-2591	TS-2675	TS-2753	TS-2821	TS-2886
TS-2388	TS-2498	TS-2592	TS-2676	TS-2754	TS-2822	TS-2890
TS-2392	TS-2499	TS-2593	TS-2677	TS-2755	TS-2823	TS-2891
TS-2393	TS-2501	TS-2596	TS-2679	TS-2756	TS-2824	TS-2892
TS-2395	TS-2505	TS-2597	TS-2680	TS-2757	TS-2826	TS-2893
TS-2397	TS-2506	TS-2601	TS-2681	TS-2758	TS-2827	TS-2896
TS-2398	TS-2508	TS-2602	TS-2682	TS-2759	TS-2828	TS-2897
TS-2399	TS-2510	TS-2603	TS-2683	TS-2760	TS-2830	TS-2898
TS-2407	TS-2512	TS-2605	TS-2685	TS-2762	TS-2831	TS-2899
TS-2408	TS-2514	TS-2606	TS-2688	TS-2765	TS-2832	TS-2900
TS-2409	TS-2517	TS-2611	TS-2689	TS-2771	TS-2833	TS-2903
TS-2410	TS-2518	TS-2612	TS-2691	TS-2772	TS-2834	TS-2904
TS-2411	TS-2521	TS-2614	TS-2695	TS-2773	TS-2835	TS-2906
TS-2412	TS-2522	TS-2615	TS-2697	TS-2775	TS-2836	TS-2907
TS-2415	TS-2527	TS-2616	TS-2698	TS-2776	TS-2837	TS-2908
TS-2417	TS-2529	TS-2617	TS-2699	TS-2778	TS-2838	TS-2909
TS-2421	TS-2532	TS-2620	TS-2700	TS-2779	TS-2839	TS-2910
TS-2422	TS-2536	TS-2625	TS-2701	TS-2780	TS-2840	TS-2911
TS-2423	TS-2540	TS-2626	TS-2707	TS-2782	TS-2843	TS-2913
TS-2427	TS-2544	TS-2628	TS-2710	TS-2783	TS-2844	TS-2914
TS-2428	TS-2545	TS-2629	TS-2711	TS-2784	TS-2845	TS-2916
TS-2435	TS-2547	TS-2630	TS-2712	TS-2785	TS-2846	TS-2917
TS-2437	TS-2551	TS-2631	TS-2713	TS-2786	TS-2848	TS-2919
TS-2440	TS-2552	TS-2632	TS-2714	TS-2788	TS-2849	TS-2920
TS-2444	TS-2553	TS-2634	TS-2716	TS-2790	TS-2850	TS-2922
TS-2446	TS-2554	TS-2635	TS-2717	TS-2791	TS-2851	TS-2923
TS-2447	TS-2555	TS-2636	TS-2719	TS-2792	TS-2852	TS-2924
TS-2453	TS-2558	TS-2637	TS-2722	TS-2793	TS-2853	TS-2925
TS-2455	TS-2562	TS-2640	TS-2724	TS-2794	TS-2854	TS-2927
TS-2458	TS-2563	TS-2641	TS-2725	TS-2795	TS-2855	TS-2928
TS-2460	TS-2566	TS-2642	TS-2726	TS-2796	TS-2856	TS-2929
TS-2463	TS-2568	TS-2644	TS-2727	TS-2797	TS-2857	TS-2930
TS-2466	TS-2570	TS-2647	TS-2728	TS-2799	TS-2860	TS-2932
TS-2467	TS-2571	TS-2648	TS-2732	TS-2801	TS-2861	TS-2933
TS-2471	TS-2572	TS-2650	TS-2734	TS-2803	TS-2862	TS-2934
TS-2472	TS-2573	TS-2651	TS-2735	TS-2804	TS-2863	TS-2935
TS-2474	TS-2574	TS-2653	TS-2736	TS-2805	TS-2864	TS-2937
TS-2476	TS-2575	TS-2656	TS-2738	TS-2807	TS-2865	TS-2938
TS-2477	TS-2576	TS-2657	TS-2739	TS-2808	TS-2868	TS-2939
TS-2478	TS-2579	TS-2658	TS-2740	TS-2810	TS-2872	TS-2943
TS-2481	TS-2580	TS-2659	TS-2741	TS-2811	TS-2874	TS-2944
TS-2482	TS-2581	TS-2662	TS-2742	TS-2812	TS-2877	TS-2946

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TS-2948	TS-3040	TS-3113	TS-3177	TS-3249	TS-3689	TS-3928
TS-2949	TS-3043	TS-3114	TS-3178	TS-3250	TS-3690	TS-3936
TS-2950	TS-3046	TS-3116	TS-3179	TS-3251	TS-3695	TS-3939
TS-2951	TS-3049	TS-3119	TS-3180	TS-3252	TS-3699	TS-3942
TS-2953	TS-3050	TS-3120	TS-3181	TS-3253	TS-3702	TS-3950
TS-2954	TS-3052	TS-3121	TS-3182	TS-3255	TS-3703	TS-3958
TS-2955	TS-3054	TS-3122	TS-3183	TS-3256	TS-3704	TS-3961
TS-2957	TS-3055	TS-3123	TS-3184	TS-3257	TS-3706	TS-3968
TS-2958	TS-3056	TS-3124	TS-3185	TS-3259	TS-3708	TS-3987
TS-2959	TS-3058	TS-3125	TS-3186	TS-3262	TS-3710	TS-3993
TS-2960	TS-3060	TS-3126	TS-3188	TS-3271	TS-3717	TS-3995
TS-2962	TS-3065	TS-3127	TS-3189	TS-3276	TS-3718	TS-4003
TS-2964	TS-3066	TS-3129	TS-3191	TS-3278	TS-3734	TS-4027
TS-2965	TS-3071	TS-3131	TS-3193	TS-3282	TS-3743	TS-4031
TS-2968	TS-3072	TS-3132	TS-3194	TS-3286	TS-3761	TS-4087
TS-2969	TS-3074	TS-3133	TS-3195	TS-3289	TS-3772	TS-4099
TS-2973	TS-3075	TS-3134	TS-3198	TS-3290	TS-3780	TS-4118
TS-2976	TS-3076	TS-3135	TS-3200	TS-3291	TS-3789	TS-4145
TS-2980	TS-3077	TS-3138	TS-3201	TS-3292	TS-3805	TS-4146
TS-2984	TS-3078	TS-3139	TS-3202	TS-3295	TS-3820	TS-4147
TS-2985	TS-3079	TS-3140	TS-3204	TS-3297	TS-3821	TS-4163
TS-2986	TS-3080	TS-3141	TS-3205	TS-3306	TS-3822	TS-4167
TS-2988	TS-3081	TS-3142	TS-3207	TS-3309	TS-3824	TS-4175
TS-2991	TS-3082	TS-3143	TS-3210	TS-3310	TS-3825	TS-4178
TS-2998	TS-3084	TS-3144	TS-3215	TS-3317	TS-3839	TS-4181
TS-3001	TS-3087	TS-3145	TS-3216	TS-3320	TS-3841	TS-4186
TS-3002	TS-3088	TS-3148	TS-3217	TS-3328	TS-3843	TS-4195
TS-3003	TS-3089	TS-3149	TS-3218	TS-3388	TS-3844	TS-4212
TS-3005	TS-3090	TS-3151	TS-3219	TS-3392	TS-3846	TS-4232
TS-3006	TS-3091	TS-3154	TS-3221	TS-3395	TS-3849	TS-4271
TS-3009	TS-3093	TS-3155	TS-3222	TS-3429	TS-3850	TS-4331
TS-3011	TS-3094	TS-3156	TS-3223	TS-3441	TS-3851	TS-4345
TS-3016	TS-3096	TS-3158	TS-3224	TS-3516	TS-3853	TS-4366
TS-3018	TS-3097	TS-3159	TS-3226	TS-3561	TS-3855	TS-4396
TS-3020	TS-3098	TS-3160	TS-3227	TS-3567	TS-3857	TS-4401
TS-3021	TS-3100	TS-3161	TS-3232	TS-3574	TS-3860	TS-4420
TS-3025	TS-3101	TS-3162	TS-3234	TS-3590	TS-3862	TS-4461
TS-3026	TS-3102	TS-3164	TS-3235	TS-3591	TS-3863	TS-4480
TS-3027	TS-3103	TS-3166	TS-3236	TS-3595	TS-3871	TS-4636
TS-3028	TS-3104	TS-3167	TS-3237	TS-3598	TS-3878	TS-4651
TS-3030	TS-3105	TS-3168	TS-3240	TS-3609	TS-3879	TS-4678
TS-3031	TS-3106	TS-3169	TS-3241	TS-3625	TS-3882	TS-4696
TS-3032	TS-3107	TS-3170	TS-3242	TS-3638	TS-3883	TS-4770
TS-3033	TS-3108	TS-3171	TS-3243	TS-3650	TS-3885	
TS-3034	TS-3109	TS-3172	TS-3244	TS-3669	TS-3910	
TS-3035	TS-3110	TS-3174	TS-3245	TS-3684	TS-3914	
TS-3037	TS-3111	TS-3175	TS-3247	TS-3685	TS-3921	
TS-3038	TS-3112	TS-3176	TS-3248	TS-3687	TS-3924	

Appendix E

Affected Rudder P/N
D5547100000000
D5547100000200
D5547100000400
D5547100000600
D5547100000800
D5547100001000
D5547100001200
D5547100001400
D5547100001600
D5547100001800
D5547100002000
D5547100100000
D5547100200000
D5547100300000
D5547100400000

Associated S/N
TS-2141
TS-2269
TS-2274
TS-2295
TS-2317
TS-2664
TS-2715