

**DEPARTMENT OF TRANSPORTATION****Federal Aviation Administration****14 CFR Part 39**

[Docket No. FAA-2010-0515; Directorate Identifier 2009-NM-196-AD]

RIN 2120-AA64

**Airworthiness Directives; Bombardier, Inc. Model CL-600-2C10 (Regional Jet Series 700, 701 & 702), Model CL-600-2D15 (Regional Jet Series 705), and Model CL-600-2D24 (Regional Jet Series 900) Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Supplemental notice of proposed rulemaking (NPRM); reopening of comment period.

**SUMMARY:** We are revising an earlier NPRM for the products listed above. This action revises the earlier NPRM by expanding the scope. This proposed AD results from mandatory continuing airworthiness information (MCAI) originated by an aviation authority of another country to identify and correct an unsafe condition on an aviation product. The MCAI describes the unsafe condition as:

Several cases have been reported of cracks in the joint extrusions securing the outer bondment to the acoustic panel of the nacelle transcowl assemblies. Although there is no effect on flight safety (thrust reverser stowed), thrust reverser deployment under rejected take-off or emergency landing load conditions could potentially result in acoustic panel failure and possible runway debris.

\* \* \* \* \*

The loss of an acoustic panel during rejected take-off or emergency landing load conditions could leave debris on the runway. This debris, if not removed, creates an unsafe condition for other airplanes during take-off or landing, as those airplanes could impact debris on the runway and sustain damage. The proposed AD would require actions that are intended to address the unsafe condition described in the MCAI.

**DATES:** We must receive comments on this proposed AD by May 23, 2011.

**ADDRESSES:** You may send comments by any of the following methods:

- *Federal eRulemaking Portal:* Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.

- *Fax:* (202) 493-2251.

- *Mail:* U.S. Department of

Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE, Washington, DC 20590.

- *Hand Delivery:* U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-40, 1200 New Jersey Avenue, SE, Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this proposed AD, contact Bombardier, Inc., 400 Côte-Vertu Road West, Dorval, Québec H4S 1Y9, Canada; telephone 514-855-5000; fax 514-855-7401; e-mail [thd.crj@aero.bombardier.com](mailto:thd.crj@aero.bombardier.com); Internet <http://www.bombardier.com>. You may review copies of the referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

**Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Operations office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Operations office (telephone (800) 647-5527) is in the **ADDRESSES** section. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Craig Yates, Aerospace Engineer, Airframe and Mechanical Systems Branch, ANE-171, FAA, New York Aircraft Certification Office, 1600 Stewart Avenue, Suite 410, Westbury, New York 11590; telephone (516) 228-7355; fax (516) 794-5531.

**SUPPLEMENTARY INFORMATION:**

**Comments Invited**

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the **ADDRESSES** section. Include “Docket No. FAA-2010-0515; Directorate Identifier 2009-NM-196-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD based on those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

**Discussion**

We proposed to amend 14 CFR part 39 with an earlier NPRM for the specified products, which was published in the **Federal Register** on May 18, 2010 (75 FR 27665). That earlier NPRM proposed to require actions intended to address the unsafe condition for the products listed above.

In paragraph (f)(2) of the original NPRM, we referred to Task 05-51-27-210-801 of Part 2, Volume 1, of the Bombardier CRJ Series Regional Jet Aircraft Maintenance Manual (AMM), CSP B-001, Revision 28, dated January 20, 2009, as a source of information for doing the inspection of the transcowl assembly. Revision 28 of the AMM does not include the inspection. We have revised paragraph (h) of the supplemental NPRM (referenced as paragraph (f)(2) in the original NPRM) to specify the inspection procedure.

Transport Canada Civil Aviation (TCCA), which is the aviation authority for Canada, has issued Canadian Airworthiness Directive CF-2009-33, dated July 28, 2009 (referred to after this as “the MCAI”), to correct an unsafe condition for the specified products. The MCAI states:

Several cases have been reported of cracks in the joint extrusions securing the outer bondment to the acoustic panel of the nacelle transcowl assemblies. Although there is no effect on flight safety (thrust reverser stowed), thrust reverser deployment under rejected take-off or emergency landing load conditions could potentially result in acoustic panel failure and possible runway debris.

This directive mandates inspection, repair (if necessary) and reinforcement of the transcowl assemblies.

The loss of an acoustic panel during rejected take-off or emergency landing load conditions could leave debris on the runway. This debris, if not removed, creates an unsafe condition for other airplanes during take-off or landing, as those airplanes could impact debris on the runway and sustain damage. The inspection is a detailed visual inspection of the outboard edge of the transcowl joint extrusion for evidence of cracking. The repair consists of doing an eddy current or liquid penetrant inspection for cracking, and depending on the results, either removing the affected joint extrusion area and replacing with packers, or contacting Bombardier for repair instructions and doing the repair. The reinforcement of the transcowl assemblies includes installing new support channels. You may obtain further information by examining the MCAI in the AD docket.

## Relevant Service Information

Bombardier has issued Service Bulletin 670BA-78-008, Revision B, dated December 22, 2010; and Service Bulletin 670SH-78-029, Revision C, dated November 10, 2010. The actions described in this service information are intended to correct the unsafe condition identified in the MCAI.

## Comments

We have considered the following comments received on the earlier NPRM.

### Requests To Refer to Latest Task Revision of AMM

Comair, Inc. (Comair) and Mesa Airlines (Mesa) both requested that we include the latest revision of the AMM task or a statement to account for the current AMM release for the task proposed in the original NPRM. Comair explained that the latest AMM task revisions are at Revisions 29 and 30, and Mesa explained that the AMM task is up to Revision 31, dated March 20, 2010.

We partially agree with the request to refer to the latest revision of the AMM task. We agree that later revisions of the AMM task are more appropriate to the actions proposed in the original NPRM. However, instead of referring to the latest revisions of the AMM task in the supplemental NPRM, we have revised paragraph (h) of the supplemental NPRM to spell out the required actions, thus eliminating the need to request an alternative method of compliance (AMOC) every time the AMM is updated. A reference to Revision 34, dated November 20, 2010, to the AMM task as an additional source of guidance is provided in Note 1 of the supplemental NPRM.

### Request To Require Only Part 3 of the AMM Task

Comair requested that we revise the original NPRM to refer only to Part 3 of AMM Task 05-51-27-210-810. Comair reasoned that Part 1 and Part 2 do not pertain to the subject of the unsafe condition addressed by the original NPRM and should not be mandated through the AD process.

We assume Comair is referring to AMM Task 05-51-27-201-801. While we disagree with the request to refer to "Procedure—Part 3," in the required actions in the supplemental NPRM, we have included this reference in Note 1 of the Supplemental NPRM. As discussed above, the supplemental NPRM specifies the required actions instead of referring to a specific AMM task revision, thus eliminating the need for section identification as new

revisions to the AMM are released. We have not revised the supplemental NPRM in this regard.

### Request To Define High-Energy Stop (HES) or Rejected Take-Off (RTO)

Comair requested that we define the terms HES and RTO in the original NPRM because inspections should not be mandated if the RTO/HES occurs outside certain parameters. Comair explained that an RTO might occur at any speed and not require any braking or deployment of the thrust reverser. Comair stated that Revision 30 of AMM Task 05-51-27-210-807, defines when the joint extrusion of the transcowl assemblies need to be inspected as follows:

- If an RTO occurs and thrust reversers are deployed above 68% N1.
- If during an HES, the thrust reversers are deployed above 68% N1.

We infer that Comair is referring to AMM Task 05-51-27-210-801, which calls out the conditions to proceed, as Comair suggests, in Part 3 of the AMM task, "Examination of the Joint Extrusion of the Transcowl Assemblies." We agree with the request to define RTO and HES for the reasons Comair stated. We have revised paragraph (h) of the supplemental NPRM (paragraph (f)(2) of the original NPRM) accordingly.

### Request for Inclusion of Post-Serviceable Part Numbers

Mesa requested that we revise the original NPRM to include post-serviceable part numbers KCN624-2003-4, -6, or -8.

We agree to include post-serviceable part numbers KCN624-2003-4, -6, or -8 in the supplemental NPRM. Part numbers KCN624-2003-4, -6, and -8 are listed in paragraph 1.N., "Relationship Chart," of Bombardier Service Bulletin 670SH-78-029, Revision C, dated November 10, 2010, which is an additional source of service information for the actions specified in Bombardier Service Bulletin 670BA-78-008, Revision B, dated December 22, 2010. We have revised paragraph (g)(1)(i) of the supplemental NPRM accordingly.

### Request for Inclusion of Credit Service Information

Mesa requested that we revise paragraphs (f)(1)(ii), (f)(3), (f)(4), and (f)(5) of the original NPRM to include Bombardier Service Bulletin 670SH-78-029, dated July 3, 2008; Revision A, dated June 30, 2009; and Revision B, dated November 25, 2009; as a source of service information.

We agree to revise the supplemental NPRM to give credit to those operators

who have done the actions in accordance with Bombardier Service Bulletin 670SH-78-029, dated July 3, 2008; Revision A, dated June 30, 2009; and Revision B, dated November 25, 2009. We have revised paragraph (i) of the supplemental NPRM (paragraph (f)(4) of the original NPRM), accordingly. Paragraphs (g)(2), (i), and (k) of the supplemental NPRM (paragraphs (f)(1)(ii), (f)(3), and (f)(5) of the original NPRM) refer to the latest revisions of the service information. While Mesa and Bombardier referred to Bombardier Service Bulletin 670SH-78-029, Revision A, dated July 29, 2009, June 30, 2009, is the appropriate date for Revision A of Bombardier Service Bulletin 670SH-78-029.

### FAA's Determination and Requirements of This Proposed AD

This product has been approved by the aviation authority of another country, and is approved for operation in the United States. Pursuant to our bilateral agreement with the State of Design Authority, we have been notified of the unsafe condition described in the MCAI and service information referenced above. We are proposing this AD because we evaluated all pertinent information and determined an unsafe condition exists and is likely to exist or develop on other products of the same type design.

Certain changes described above expand the scope of the earlier NPRM. As a result, we have determined that it is necessary to reopen the comment period to provide additional opportunity for the public to comment on this proposed AD.

### Differences Between This AD and the MCAI or Service Information

We have reviewed the MCAI and related service information and, in general, agree with their substance. But we might have found it necessary to use different words from those in the MCAI to ensure the AD is clear for U.S. operators and is enforceable. In making these changes, we do not intend to differ substantively from the information provided in the MCAI and related service information.

We might also have proposed different actions in this AD from those in the MCAI in order to follow FAA policies. Any such differences are highlighted in a Note within the proposed AD.

### Explanation of Additional Paragraph in the Supplemental NPRM

We have added a new paragraph (f) to this supplemental NPRM to clarify the responsibility for performing the

proposed actions within the specified compliance times. We have re-identified subsequent paragraphs accordingly.

### Costs of Compliance

Based on the service information, we estimate that this proposed AD would affect about 361 products of U.S. registry. We also estimate that it would take about 8 work-hours per product to comply with the basic requirements of this proposed AD. The average labor rate is \$85 per work-hour. Required parts would cost about \$0 per product. Where the service information lists required parts costs that are covered under warranty, we have assumed that there will be no charge for these costs. As we do not control warranty coverage for affected parties, some parties may incur costs higher than estimated here. Based on these figures, we estimate the cost of the proposed AD on U.S. operators to be \$245,480, or \$680 per product.

In addition, we estimate that any necessary follow-on actions would take between 4 and 8 work-hours and require parts costing \$0, for a cost between \$340 and \$680 per product. We have no way of determining the number of products that may need these actions.

### Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. "Subtitle VII: Aviation Programs," describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in "Subtitle VII, Part A, Subpart III, Section 44701: General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### Regulatory Findings

We determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this proposed regulation:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

### List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

### The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

### PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

**Authority:** 49 U.S.C. 106(g), 40113, 44701.

#### § 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new AD:

**Bombardier, Inc.: Docket No. FAA-2010-0515; Directorate Identifier 2009-NM-196-AD.**

#### Comments Due Date

(a) We must receive comments by May 23, 2011.

#### Affected ADs

(b) None.

#### Applicability

(c) This AD applies to the airplanes identified in paragraphs (c)(1) and (c)(2) of this AD, certificated in any category.

(1) Bombardier, Inc. Model CL-600-2C10 (Regional Jet Series 700, 701, & 702) airplanes, serial numbers 10003 through 10265 inclusive.

(2) Bombardier, Inc. Model CL-600-2D15 (Regional Jet Series 705) and Model CL-600-2D24 (Regional Jet Series 900) airplanes, serial numbers 15001 through 15192 inclusive.

#### Subject

(d) Air Transport Association (ATA) of America Code 78: Engine exhaust.

#### Reason

(e) The mandatory continuing airworthiness information (MCAI) states:

Several cases have been reported of cracks in the joint extrusions securing the outer bondment to the acoustic panel of the nacelle transcowl assemblies. Although there is no effect on flight safety (thrust reverser

stowed), thrust reverser deployment under rejected take-off or emergency landing load conditions could potentially result in acoustic panel failure and possible runway debris.

\* \* \* \* \*

The loss of an acoustic panel during rejected take-off or emergency landing load conditions could leave debris on the runway. This debris, if not removed, creates an unsafe condition for other airplanes during take-off or landing, as those airplanes could impact debris on the runway and sustain damage.

#### Compliance

(f) You are responsible for having the actions required by this AD performed within the compliance times specified, unless the actions have already been done.

#### Inspection, Repair, and Reinforcement

(g) Within 5,000 flight hours or 24 months after the effective date of this AD, whichever occurs first, inspect for the part number and serial number of each transcowl assembly, and, as applicable, the repair status of each transcowl assembly.

(1) If all transcowl assemblies installed on any airplane meet one of the conditions listed in paragraph (g)(1)(i), (g)(1)(ii), or (g)(1)(iii) of this AD, no further action is required by this AD, except paragraphs (h) and (k) of this AD must be complied with.

(i) Having part number (P/N) KCN624-2003-3, -4, -5, -6, -7, or -8, as listed in Bombardier Service Bulletin 670SH-78-029, Revision C, dated November 10, 2010.

(ii) Having P/Ns CN624-2001-XXX or KCN624-2001-X (XXX and X mean various dash numbers), with serial number (S/N) SB0965 or higher.

(iii) Having P/Ns CN624-2001-XXX or KCN624-2001-X (XXX and X mean various dash numbers), and repaired in accordance with one of the Bombardier repair engineering orders (REOs) listed in paragraph 1.D. of Bombardier Service Bulletin 670BA-78-008, Revision B, dated December 22, 2010; or paragraph 1.A. of Bombardier Service Bulletin 670SH-78-029, Revision C, dated November 10, 2010.

(2) If one or more of the transcowl assemblies have P/N CN624-2001-XXX or KCN624-2001-X (XXX and X mean various dash numbers), with S/N SB0964 or lower, and have not been repaired in accordance with one of the Bombardier REOs listed in paragraph 1.D. of Bombardier Service Bulletin 670BA-78-008, Revision B, dated December 22, 2010; or paragraph 1.A. of Bombardier Service Bulletin 670SH-78-029, Revision C, dated November 10, 2010; do the actions specified in paragraph (i) of this AD.

(h) As of the effective date of this AD, if any high-energy stop occurs and the thrust reversers are deployed above 68% N1; or if a rejected take-off (RTO) occurs and the thrust reversers are deployed above 68% N1; perform a detailed inspection for cracks of each transcowl assembly (left, right, upper, and lower) before further flight, by doing the actions specified in paragraphs (h)(1), (h)(2), and (h)(3) of this AD. Doing the requirements of paragraph (i) of this AD terminates the requirements of paragraph (h) of this AD.

(1) Open the cowling on the left and right engines.

(2) Do a detailed inspection for cracks of the joint extrusion of the upper and lower transcowl assembly on the left and right engines at the location of the joint piece. If no cracks are found, close the cowlings on the left and right engines.

(3) If any crack is found on one or more transcowl assemblies during the inspection required by paragraph (h)(2) of this AD, before further flight, repair and reinforce the cracked part(s) in accordance with paragraph (i)(1) of this AD.

**Note 1:** Procedure-Part 3 of Task 05-51-27-210-801 of Part 2, Volume 1, of the Bombardier CRJ Series Regional Jet AMM, CSP B-001, Revision 34, dated November 20, 2010, gives guidance for opening and closing the cowling on the left and right engines.

(i) For transcowl assemblies identified in paragraph (g)(2) of this AD: Except as required by paragraph (h) of this AD, within

5,000 flight hours or 24 months after the effective date of this AD, whichever comes first, do a detailed inspection for cracking on each transcowl assembly, in accordance with the Accomplishment Instructions of Bombardier Service Bulletin 670BA-78-008, Revision B, dated December 22, 2010; or Bombardier Service Bulletin 670SH-78-029, Revision C, dated November 10, 2010. Accomplishment of the actions specified in paragraph (i)(1) or (i)(2) of this AD for all transcowl assemblies identified in paragraph (g)(2) of this AD terminates the requirements of paragraph (h) of this AD.

(1) If any cracking of the joint extrusion is found, before further flight, repair and reinforce the joint extrusion on each transcowl assembly, in accordance with the Accomplishment Instructions of Bombardier Service Bulletin 670BA-78-008, Revision B, dated December 22, 2010; or Bombardier

Service Bulletin 670SH-78-029, Revision C, dated November 10, 2010.

(2) If no cracking is found, before further flight, reinforce the joint extrusion on each transcowl assembly, in accordance with the Accomplishment Instructions of Bombardier Service Bulletin 670BA-78-008, Revision B, dated December 22, 2010; or Bombardier Service Bulletin 670SH-78-029, Revision C, dated November 10, 2010.

#### Credit for Actions Accomplished in Accordance with Previous Service Information

(j) Inspections, repairs, and reinforcement of the joint extrusion on each transcowl is also acceptable for compliance with the corresponding requirements of paragraph (i) of this AD if done before the effective date of this AD in accordance with the service information listed in table 1 of this AD.

TABLE 1—SERVICE INFORMATION

Document	Revision	Date
Bombardier Service Bulletin 670BA-78-008 .....	Original .....	September 19, 2008.
Bombardier Service Bulletin 670BA-78-008 .....	A .....	July 10, 2009.
Bombardier Service Bulletin 670SH-78-029 .....	Original .....	July 3, 2008.
Bombardier Service Bulletin 670SH-78-029 .....	A .....	June 30, 2009.
Bombardier Service Bulletin 670SH-78-029 .....	B .....	November 25, 2009.

#### Parts Installation

(k) As of the effective date of this AD, no replacement or spare transcowl assembly having P/N CN624-2001-XXX or KCN624-2001-X (XXX and X mean various dash numbers), with S/N SB0964 or lower, may be installed on any airplane, except for a transcowl assembly on which any repair listed in paragraph 1.D. of Bombardier Service Bulletin 670BA-78-008, Revision B, dated December 22, 2010, or paragraph 1.A. of Bombardier Service Bulletin 670SH-78-029, Revision C, dated November 10, 2010, has been done; and except for a transcowl that has been inspected as specified in paragraph (i) of this AD and all applicable actions specified in paragraph (i)(1) or (i)(2) of this AD, as applicable, have been done.

#### FAA AD Differences

**Note 2:** This AD differs from the MCAI and/or service information as follows: No differences.

#### Other FAA AD Provisions

(l) The following provisions also apply to this AD:

(1) Alternative Methods of Compliance (AMOCs): The Manager, New York Aircraft Certification Office, ANE-170, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. Send information to ATTN: Program Manager, Continuing Operational Safety, 1600 Stewart Avenue, Suite 40, Westbury, N.Y. 11590; telephone 516-228-7300; fax 516-794-5531. Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding

district office. The AMOC approval letter must specifically reference this AD.

(2) Airworthy Product: For any requirement in this AD to obtain corrective actions from a manufacturer or other source, use these actions if they are FAA-approved. Corrective actions are considered FAA-approved if they are approved by the State of Design Authority (or their delegated agent). You are required to assure the product is airworthy before it is returned to service.

#### Related Information

(m) Refer to MCAI Canadian Airworthiness Directive CF-2009-33, dated July 28, 2009; Bombardier Service Bulletin 670BA-78-008, Revision B, dated December 22, 2010; and Bombardier Service Bulletin 670SH-78-029, Revision C, dated November 10, 2010; for related information.

Issued in Renton, Washington, on March 24, 2011.

**Ali Bahrami,**

*Manager, Transport Airplane Directorate, Aircraft Certification Service.*

[FR Doc. 2011-8197 Filed 4-5-11; 8:45 am]

**BILLING CODE 4910-13-P**

#### DEPARTMENT OF TRANSPORTATION

#### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. FAA-2011-0264; Directorate Identifier 2009-NM-244-AD]

**RIN 2120-AA64**

**Airworthiness Directives; Airbus Model A300 B4-600, B4-600R, and F4-600R Series Airplanes, and Model C4-605R Variant F Airplanes (Collectively Called A300-600 Series Airplanes)**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** We propose to adopt a new airworthiness directive (AD) for the products listed above that would supersede an existing AD. This proposed AD results from mandatory continuing airworthiness information (MCAI) originated by an aviation authority of another country to identify and correct an unsafe condition on an aviation product. The MCAI describes the unsafe condition as:

[T]he FAA has published SFAR 88 (Special Federal Aviation Regulation 88). \* \* \*

Under this regulation, all holders of type certificates for passenger transport aeroplanes \* \* \* are required to conduct a design review against explosion risks. The replacement of some types of P-clips and