



August 3, 2021

CERTIFIED MAIL

RETURN RECEIPT REQUESTED

Randy Petresh
Haldex Commercial Vehicle Systems
10930 North Pomona Ave
Kansas City, MO 64153

NEF-106ns
PE21-018

Dear Mr. Petresh:

This letter is to inform you that the Office of Defects Investigation (ODI) of the National Highway Traffic Safety Administration (NHTSA) has opened a Preliminary Evaluation (PE21-018) to investigate allegations of power spring failures in certain 2015-2020 model year (MY) vehicles equipped with Haldex GoldSeal Double Diaphragm Spring Brake Actuators (Actuators) and to request certain information.

This office has received eleven (11) Vehicle Owner Questionnaires (VOQs) alleging failure of an actuator installed as original equipment. In seven (7) of these reports, a fire is alleged, resulting in significant damage to the vehicle, trailer, and/or cargo. A copy of each of the reports is enclosed for your information.

Unless otherwise stated in the text, the following definitions apply to these information requests:

- **Subject vehicles:** any Model Year 2015-2020 truck, tractor or trailer equipped with a Haldex GoldSeal Double Diaphragm Spring Brake Actuator sold or leased in the United States, including, but not limited to, the District of Columbia, and current U.S. territories and possessions.
- **Subject component:** all GoldSeal 3030 Long Stroke Brake Chambers installed as original equipment on the subject vehicles.
- **Alleged defect:** any failure of the subject component that involves the spring brake system.
- **Haldex:** Haldex Commercial Vehicle Systems, all of its past and present officers and employees, whether assigned to its principal offices or any of its field or other locations, including all of its divisions, subsidiaries (whether or not incorporated) and affiliated enterprises and all of their headquarters, regional, zone and other offices and their employees, and all agents, contractors, consultants, attorneys and law firms and other persons engaged directly or indirectly (e.g., employee of a consultant) by or under the

control of Haldex (including all business units, component and material suppliers, and persons previously referred to), who are or, in or after January 1, 2014, were involved in any way with any of the following related to the alleged defect in the subject vehicles:

- a. Design, engineering, analysis, modification, or production (e.g. quality control);
- b. Testing, assessment, or evaluation;
- c. Consideration, or recognition of potential or actual defects, reporting, record-keeping and information management, (e.g., complaints, field reports, warranty information, part sales), analysis, claims, or lawsuits; or
- d. Communication to, from or intended for zone representatives, fleets, dealers, or other field locations, including but not limited to people who have the capacity to obtain information from dealers.

- **Document:** “Document(s)” is used in the broadest sense of the word and shall mean all original written, printed, typed, recorded, or graphic matter whatsoever, however produced or reproduced, of every kind, nature, and description, and all non-identical copies of both sides thereof, including, but not limited to, papers, letters, memoranda, correspondence, communications, electronic mail (e-mail) messages (existing in hard copy and/or in electronic storage), faxes, mailgrams, telegrams, cables, telex messages, notes, annotations, working papers, drafts, minutes, records, audio and video recordings, data, databases, other information bases, summaries, charts, tables, graphics, other visual displays, photographs, statements, interviews, opinions, reports, newspaper articles, studies, analyses, evaluations, interpretations, contracts, agreements, jottings, agendas, bulletins, notices, announcements, instructions, blueprints, drawings, as-builts, changes, manuals, publications, work schedules, journals, statistical data, desk, portable and computer calendars, appointment books, diaries, travel reports, lists, tabulations, computer printouts, data processing program libraries, data processing inputs and outputs, microfilms, microfiches, statements for services, resolutions, financial statements, governmental records, business records, personnel records, work orders, pleadings, discovery in any form, affidavits, motions, responses to discovery, all transcripts, administrative filings and all mechanical, magnetic, photographic and electronic records or recordings of any kind, including any storage media associated with computers, including, but not limited to, information on hard drives, floppy disks, backup tapes, and zip drives, electronic communications, including but not limited to, the Internet and shall include any drafts or revisions pertaining to any of the foregoing, all other things similar to any of the foregoing, however denominated by Haldex, any other data compilations from which information can be obtained, translated if necessary, into a usable form and any other documents. For purposes of this request, any document which contains any note, comment, addition, deletion, insertion, annotation, or otherwise comprises a non-identical copy of another document shall be treated as a separate document subject to production. In all cases where original and any non-identical copies are not available, “document(s)” also means any identical copies of the original and all non-identical copies thereof. Any document, record, graph, chart, film, or photograph originally produced in color must be provided in color. Furnish all documents whether verified by Haldex or not. If a document is not in the English language, provide both the original document and an English translation of the document.

- **Other Terms:** To the extent that they are used in these information requests, the terms “claim,” “consumer complaint,” “dealer field report,” “field report,” “fire,” “fleet,” “good will,” “make,” “model,” “model year,” “notice,” “property damage,” “property damage claim,” “rollover,” “type,” “warranty,” “warranty adjustment,” and “warranty claim,” whether used in singular or in plural form, have the same meaning as found in 49 CFR 579.4.

In order for my staff to evaluate the alleged defect, certain information is required. Pursuant to 49 U.S.C. § 30166, please provide numbered responses to the following information requests. Insofar as Haldex has previously provided a document to ODI, Haldex may produce it again or identify the document, the document submission to ODI in which it was included and the precise location in that submission where the document is located. When documents are produced, the documents shall be produced in an identified, organized manner that corresponds with the organization of this information request letter (including all individual requests and subparts). When documents are produced and the documents would not, standing alone, be self-explanatory, the production of documents shall be supplemented and accompanied by explanation.

Please repeat the applicable request verbatim above each response. After Haldex’s response to each request, identify the source of the information and indicate the last date the information was gathered.

1. State, by service part number and production year, the number of subject components Haldex has produced for sale in the United States. Separately, for each subject component produced to date by Haldex, state the following:
 - a. Serial number (SN);
 - b. Part Number;
 - c. Part Description (Model Name);
 - d. Date of Production;
 - e. Lot number (if applicable); and
 - f. Date warranty coverage commenced.

Provide the table in Microsoft Excel 2010, or a compatible format, entitled “PRODUCTION DATA.” A pre-formatted data collection file, which provides further details regarding this submission, will be provided to you.

2. State the number of each of the following, received by Haldex, or of which Haldex is otherwise aware, which relate to, or may relate to, the alleged defect in the subject vehicles:
 - a. Consumer complaints, including those from fleet operators;
 - b. Field reports, including dealer field reports;
 - c. Reports involving a crash, injury, or fatality;
 - d. Reports involving a fire;
 - e. Property damage claims;
 - f. Third-party arbitration proceedings where Haldex is or was a party to the arbitration; and
 - g. Lawsuits, both pending and closed, in which Haldex is or was a defendant or codefendant.

For subparts “a” through “g,” state the total number of each item (e.g., consumer complaints, field reports, etc.) separately. Multiple incidents involving the same vehicle are to be counted separately. Multiple reports of the same incident are also to be counted separately (i.e., a consumer complaint and a field report involving the same incident in which a crash occurred are to be counted as a crash report, a field report and a consumer complaint).

In addition, for items “c” through “g,” provide a summary description of the alleged problem and causal and contributing factors and Haldex’s assessment of the problem, with a summary of the significant underlying facts and evidence. For items “f” and “g,” identify the parties to the action, as well as the caption, court, docket number, and date on which the complaint or other document initiating the action was filed.

3. Separately, for each item (complaint, report, claim, notice, or matter) within the scope of your response to Request No. 2, state the following information:
 - a. Haldex’s file number or other identifier used;
 - b. The category of the item, as identified in Request No. 2 (i.e., consumer complaint, field report, etc.);
 - c. Vehicle owner or fleet name (and fleet contact person), street address, email address and telephone number;
 - d. Vehicle’s VIN;
 - e. Vehicle’s make, model, and model year;
 - f. Vehicle’s mileage at time of incident;
 - g. Subject component Serial Number;
 - h. Subject component Part Number;
 - i. Subject component Part Description (Model Name);
 - j. Subject component Date of Production;
 - k. Subject component Lot number (if applicable);
 - l. Incident date;
 - m. Report or claim date;
 - n. Build date;
 - o. Warranty Start date;
 - p. Whether a crash is alleged;
 - q. Whether a fire is alleged;
 - r. Whether property damage is alleged;
 - s. Actual or estimated cost of damage to transportation infrastructure;
 - t. Number of alleged injuries, if any; and
 - u. Number of alleged fatalities, if any.

Provide this information in Microsoft Excel 2010, or a compatible format, entitled “REQUEST NUMBER TWO DATA.” A pre-formatted data collection file, which provides further details regarding this submission, will be provided to you.

4. Produce copies of all documents related to each item within the scope of Request No. 2. Organize the documents separately by category (i.e., consumer complaints, field reports, etc.) and describe the method Haldex used for organizing the documents. Describe in detail the

search methods and search criteria used by Haldex to identify the items in response to Request No. 2.

5. State, by service part number and production year, a total count for all of the following categories of claims, collectively, that have been paid by Haldex to date that relate to, or may relate to, the alleged defect in the subject vehicles: warranty claims; extended warranty claims; claims for good will services that were provided; field, zone, or similar adjustments and reimbursements; and warranty claims or repairs made in accordance with a procedure specified in a technical service bulletin or customer satisfaction campaign.

Separately, for each such claim, state the following information:

- a. Haldex's claim number;
- b. Vehicle owner or fleet name (and fleet contact person), street address, email address and telephone number;
- c. VIN;
- d. Vehicle's make, model, and model year;
- e. Vehicle mileage at time of repair;
- f. Subject component Serial Number(s);
- g. Subject component Part Number;
- h. Subject component Part Description (Model Name);
- i. Subject component Date of Production;
- j. Subject component Lot number (if applicable);
- k. Repair date;
- l. Build date;
- m. Warranty Start date;
- n. Incident date;
- o. Repairing dealer's or facility's name, telephone number, city and state or ZIP code;
- p. Labor operation number(s);
- q. Problem code(s);
- r. Diagnostic trouble code(s);
- s. Replacement part number(s) and description(s);
- t. Concern stated by customer;
- u. Cause as stated on the repair order;
- v. Correction as stated on the repair order; and
- w. Additional comments, if any, by dealer/technician relating to claim and/or repair.

Provide this information in Microsoft Excel 2010, or a compatible format, entitled "WARRANTY DATA." A pre-formatted data collection file, which provides further details regarding this submission, will be provided to you.

6. Describe in detail the search methods and search criteria used by Haldex to identify the claims in response to Request No. 5, including the labor operations, problem codes, diagnostic trouble codes, part numbers and any other pertinent parameters used.
7. Provide a list of all labor operations, labor operation descriptions, problem codes, and problem code descriptions, diagnostic trouble codes and diagnostic trouble code descriptions

applicable to the alleged defect in the subject vehicles. State whether the diagnostic trouble codes are automatically reported to the warranty database electronically or manually entered into the warranty database by a claims administrator.

8. State the terms of the warranty coverage offered by Haldex on the subject components (i.e., the number of months and mileage for which coverage is provided). Describe any extended warranty coverage option(s) that Haldex offered for the subject component and state by service part number and production year, the number of components that are covered under each such extended warranty.
9. Produce copies of all service, warranty, and other documents that relate to, or may relate to, the alleged defect in the subject vehicles, that Haldex has issued to any dealers, regional or zone offices, field offices, fleet purchasers, or other entities. This includes, but is not limited to, bulletins, advisories, informational documents, training documents, or other documents or communications, with the exception of standard shop manuals. Also include the latest draft copy of any communication that Haldex is planning to issue within the next 120 days.
10. Describe all assessments, verification, validation, analyses, tests, test results, studies, surveys, simulations, investigations, inquiries and/or evaluations (collectively, "actions") that relate to, or may relate to, the alleged defect in the subject vehicles that have been conducted, are being conducted, are planned, or are being planned by, or for, Haldex. For each such action, provide the following information:
 - a. Action title or identifier;
 - b. The actual or planned start date;
 - c. The actual or expected end date;
 - d. Brief summary of the subject and objective of the action;
 - e. Engineering group(s)/supplier(s) responsible for designing and/or for conducting the action; and
 - f. A brief summary of the findings and/or conclusions resulting from the action.

For each action identified, provide copies of all documents related to the action, regardless of whether the documents are in interim, draft, or final form. Organize the documents chronologically by action.

11. Describe all modifications or changes made by, or on behalf of, Haldex or its supplier(s) in the design, material composition, manufacture, quality control, supply, or installation of the subject component, from the start of production to date, which relate to, or may relate to, the alleged defect in the subject vehicles. For each such modification or change, provide the following information:
 - a. The date or approximate date on which the modification or change was incorporated into production;
 - b. A detailed description of the modification or change;
 - c. The reason(s) for the modification or change;
 - d. The part number(s) (service and engineering) of the original component;
 - e. The part number(s) (service and engineering) of the modified component;

- f. Whether the original unmodified component was withdrawn from production and/or sale, and if so, when;
- g. When the modified component was made available as a service component; and
- h. Whether the modified component can be interchanged with earlier production components.

Also, provide the above information for any modification or change that Haldex is aware of which may be incorporated into production within the next 120 days.

12. Produce one of each of the following:
 - a. An exemplar sample of the subject component;
 - b. Field return samples of the subject component exhibiting the subject failure mode(s);
 - c. Disassembled exemplar and field return samples of the subject component exhibiting the subject failure mode(s); and
 - d. Any kits that have been released, or developed, by Haldex for use in service repairs to the subject component/assembly which relate, or may relate, to the alleged defect in the subject vehicles.
13. Discuss Haldex's or its suppliers' presetting and warm setting procedures used during the subject component spring formation process. Include copies of any quality control plans relative to these processes.
14. When considering the shot peening process, please describe the importance and potential failure modes in relation to the fatigue life of the springs in the subject components. Your response must also include a response to the following questions: What is the ideal shot size in Haldex's shot peening process? How does Haldex control the shot size over time and use? How is the inner surface of the spring adequately shot peened?
15. Describe the physical and chemical tests performed on the raw spring material for springs used in the subject components. Your response must also include a response to the following questions: What is the sampling rate? What is the chemical composition requirement, by percent, of the raw material?
16. In detail, describe both the quenching and tempering process applied to the springs used in the subject component.
17. In detail, describe the power spring surface coating process of the springs in the subject components. Identify all parameters that can influence the durability life of both the surface coating and the spring metal during the application and baking operations.
18. In detail, describe the corrosion testing performed on the springs in the subject components. Your description should include but not be limited to chip resistance of the surface coating and spring fracture.

19. Answer the following with respect to springs in the subject component: Is coil clash acceptable in the Haldex specification? What does Haldex do to limit or eliminate coil clash? Is it expected that the springs will lose their surface coating in normal use?
20. Discuss Haldex's procedures for controlling power spring side loading. Also describe how power spring side loading may contribute to the alleged defect if not adequately mitigated.
21. Please provide copies of any Failure Mode and Effects Analysis (FMEA) and computer-generated stress modeling Haldex is aware of or has in its possession related to the subject component's power spring.
22. State whether a broken power spring can wear or slice the diaphragm of the subject component. Describe what mitigating factors, if any, has Haldex incorporated into its design to isolate the diaphragm or prevent the diaphragm from being damaged from a broken spring?
23. State whether the operating environment of the subject vehicles induces vibration on the subject component and its power spring, which increases the stress experienced. Describe in detail what Haldex had considered or considers to be an acceptable stress level safety margin. Also describe in detail what quality control measures, if any, Haldex had or has implemented to ensure and verify that the safety margin is maintained in all springs.
24. State whether the subject component has been designed with consideration for a safe end of life failure mode. Describe in detail what Haldex had considered or considers to be a safe end of life failure. Also describe in detail what design features, if any, Haldex has incorporated into the subject component to ensure all failures are benign.
25. Haldex submitted safety recall 14E-075 on November 6, 2014. 153,265 units were initially recalled. On March 4, 2015, Haldex expanded the population with recall 15E-017 to include a total of 159,380 units. Haldex's voluntary recalls stated incomplete attachment of the internal rubber diaphragm to the actuation mechanism of the parking brake section of the actuator may result in dragging and overheated service brakes which may result in smoke and thermal damage to the vehicle and/or chassis components. Answer the following:
 - a. What corrective action(s), if any, did Haldex take to improve its quality control practices to ensure incomplete attachment of the internal rubber diaphragm would not be present in future production units?
 - b. What model brake chambers were affected by the change(s) identified in Q25.a?
 - c. What was the implementation date of all responses to Q25.a?
 - d. Provide an assessment of the effectiveness to all responses to Q25.a.
 - e. Please compare the failure mode of these recalls with the current alleged defect. How does the situation differ such that Haldex has not issued a safety recall to remedy the current alleged defect?
26. In recall 14E-075 and 15E-017, Haldex reported that the remedy component differed from the recalled component in part number and name. Please provide a thorough description of the internal rubber diaphragm and how it is manufactured and assembled in both the

defective and remedy component. Your answer should include, but not limited to, engineering drawings, manufacturing, and assembly work instructions, etc.

27. Four months separate 14E-075 and 15E-017, which expanded the recalled population. Please explain how each population was determined and what prompted the expansion.
28. In an email dated August 9, 2018, (copy provided) Haldex agreed to replace chambers on Van Wyk trucks and asked for a list of affected vehicles from Heyl Truck Lines. Answer the following:
 - a. State the reason(s) for the replacements.
 - b. Describe what, if anything, differed on these trucks from other subject vehicles.
 - c. Provide all communications and decisional documentation relative to those replacements.
 - d. If any such communications are subject to 49 CFR Part 579 reporting requirements, please identify the date which they were generated and the date on which they were provided to ODI.
 - e. If any of those communications subject to 49 CFR Part 579 were not provided to NHTSA prior to the date of this Information Request, provide those communications with your response and a detailed explanation why those communications had not been submitted.
29. In the Haldex Truck Tractor Demo Board Training video (<https://www.youtube.com/watch?v=fLqdv4BYX5c>), Senior Technical Service Representative - Rick Mello states that the accuracy of the air pressure system dash gage is required to be about 10% or within +/- 7 psi of system cutout. Please identify whose requirement this is. Further, describe the affect this variance may have on the warning provided to the driver in the event there is a system leak and a brake chamber is potentially dragging.
30. Please provide the spring force output at various heights and the equation(s) which relate it to brake chamber air pressure in the subject component.
31. Answer the following:
 - a. What, if any, thermal sensing technology does Haldex offer?
 - b. Has Haldex independently or in partnership, developed or explored thermal sensing technology to aid professional drivers in quickly identifying wheel end thermal events?
 - c. If the answer to 31.b is yes, please provide a summary of each technology.
32. Furnish Haldex's assessment of the alleged defect in the subject vehicles, including:
 - a. The causal or contributory factor(s);
 - b. The failure mechanism(s);
 - c. The failure mode(s);
 - d. The risk to motor vehicle safety that it poses;
 - e. What warnings, if any, the operator and the other persons both inside and outside the vehicle would have that the alleged defect was occurring, or subject component was malfunctioning; and
 - f. The reports included with this inquiry.

Legal Authority for This Request

This letter is being sent to Haldex pursuant to 49 U.S.C. § 30166, which authorizes NHTSA to conduct any investigation that may be necessary to enforce Chapter 301 of Title 49 and to request reports and the production of things. It constitutes a new request for information.

Civil Penalties

Haldex's failure to respond promptly and fully to this letter could subject Haldex to civil penalties pursuant to 49 U.S.C. § 30165 or lead to an action for injunctive relief pursuant to 49 U.S.C. § 30163. (Other remedies and sanctions are available as well.) The Vehicle Safety Act, as amended, 49 U.S.C. § 30165(a)(3), provides for civil penalties of up to \$22,992 per violation per day, with a maximum of \$114,954,525 for a related series of daily violations, for failing or refusing to perform an act required under 49 U.S.C. § 30166. *See* 49 CFR 578.6. This includes failing to respond completely, accurately, and in a timely manner to ODI information requests. Falsifying or withholding information in response to this Information Request may also lead to criminal penalties of a fine or imprisonment of up to 15 years, or both. 49 U.S.C. § 30170(a)(1).

If Haldex cannot respond to any specific request or subpart(s) thereof, please state the reason why it is unable to do so. If on the basis of attorney-client, attorney work product, or other privilege, Haldex does not submit one or more requested documents or items of information in response to this information request, Haldex must provide a privilege log identifying each document or item withheld, and stating the date, subject or title, the name and position of the person(s) from, and the person(s) to whom it was sent, and the name and position of any other recipient (to include all carbon copies or blind carbon copies), the nature of that information or material, and the basis for the claim of privilege and why that privilege applies.

Confidential Business Information

All business confidential information must be submitted directly to the Office of Chief Counsel as described in the following paragraph and should not be sent to this office. In addition, do not submit any business confidential information in the body of the letter submitted to this office. Please refer to PE21-018 in Haldex's response to this letter and in any confidentiality request submitted to the Office of Chief Counsel.

If Haldex claims that any of the information or documents provided in response to this information request constitute confidential commercial material within the meaning of 5 U.S.C. § 552(b)(4), or are protected from disclosure pursuant to 18 U.S.C. § 1905, Haldex must submit supporting information together with the materials that are the subject of the confidentiality request, in accordance with 49 CFR Part 512, as amended, to the Office of Chief Counsel. To facilitate social distancing due to COVID-19, NHTSA is treating electronic submission as an acceptable method for submitting confidential business information (CBI) to the agency under 49 C.F.R. Part 512.¹ Since Part 512 submissions are handled by NHTSA's Office of Chief Counsel, any Part 512 submission should be sent to the Office of Chief Counsel electronically.

¹ *See* <https://www.nhtsa.gov/coronavirus/submission-confidential-business-information>.

Specifically, any CBI submissions sent via email should be sent to Sarah Sorg at sarah.sorg@dot.gov.

At this time, regulated entities should not send a duplicate hardcopy of their electronic CBI submissions to DOT headquarters. Please note that these modified submission procedures are only to facilitate continued operations while maintaining appropriate social distancing due to COVID-19. Regular procedures for Part 512 submissions will resume upon further notice, when NHTSA and regulated entities discontinue operating primarily in telework status.

If you have any questions regarding submission of a request for confidential treatment, contact Daniel Rabinovitz, Trial Attorney, Office of Chief Counsel at daniel.rabinovitz@dot.gov or (202) 366-8534.

Due Date

Haldex's response to this letter, in duplicate, together with a copy of any confidentiality request, must be submitted to this office by **September 17, 2021**. Haldex's response must include all non-confidential attachments and a redacted version of all documents that contain confidential information. If Haldex finds that it is unable to provide all of the information requested within the time allotted, Haldex must request an extension from me at (202) 366-0698 no later than five business days before the response due date. If Haldex is unable to provide all of the information requested by the original deadline, it must submit a partial response by the original deadline with whatever information Haldex then has available, even if an extension has been granted.

Please send email notification to Nate Seymour at nate.seymour@dot.gov and to ODI_IRresponse@dot.gov when Haldex sends its response to this office and indicate whether there is confidential information as part of Haldex's response.

If you have any technical questions concerning this matter, please call Nate Seymour of my staff at (202) 366-2069.

Sincerely,



Josh Neff, Chief
Medium/Heavy Duty Vehicle Defect Division
Office of Defects Investigation

Enclosure 1, Copies of the subject reports referenced in the introduction of this letter identified by the following ODI reference numbers:.