

To Phil Pennington

Via email - Phil.Pennington@rnz.co.nz>

Dear Phil

Official Information Act request: New Ferries

I refer to your request dated 15 May 2023, pursuant to the Official Information Act 1982 (the Act), asking for information on the rubber expansion joints (REJs) used throughout the *Kaitaki* – following the release of the preliminary TAIC findings.

We have set out your questions, and our responses below.

In general, KiwiRail would like to note that there is no definitive recommendation for existing REJs manufacturers on the age/date of manufacture related requirements for use, and these vary between manufacturers.

While the TAIC investigation noted the manufacturer advised them of an eight-month shelf life, our proactive review of six manufacturers following the incident indicated there is no industry standard.

Interislander's has adopted a '4+4 standard' since the 28 January 2023 incident – four years shelf life and four years use in service. Interislander's standard was developed by reviewing recommendations and industry practice.

We note Elaflex, who is our major maker of rubber expansion joints, has no specific recommendation, however four years shelf life exceeds four manufacturers' recommendations and four years' operating use is within the 3-5 years replacement timeframe for use in service.

The TAIC recommendation for rubber joints to be installed within eight months of manufacturer (i.e. a shelf life of eight months) is a major departure from industry practice, and does not follow the advice of the main manufacturer of joints used by Interislander.

For reference, here is the shelf-life and replacement recommendations from six makers:

Maker	Country	Shelf Life	Replacement
Posiflex	UK	Max 10 years	No definite
Garlock	USA	Recommended 5 years	5-7 years
Elaflex	Denmark	No definite	3-7 years depending on operating conditions
Hoseflex	Australia	10 years	No definite
Haleson	Canada	10 years	No definite
Eagle Burgmann	Germany	18 months	5-10 years depending on operating conditions

Answers to your specific questions.

1 - Details of the existing REJs - as in those that were replaced as part of replacing all safety critical rubber expansion joints on Kaitaki and the rest of the fleet

Please find below the list of all safety critical REJs on Kaitaki at the time of the incident with date of

manufacture:

Install Location	Make & Model at the time of the Incident	Size	Date of Manufacture of REJs at the time of the Incident
Main Engine no. 1 HTCW inlet	ROTEX	125 x 150.16	2015
Main Engine no. 1 HTCW outlet	ROTEX	125 x 150.16	2007
Main Engine no. 1 LTCW inlet	ROTEX	125 x 150.16	2020
Main Engine no. 1 LTCW outlet	ROTEX	125 x 150.16	2017
Main Engine no. 2 HTCW inlet	ROTEX	125 x 150.16	2017
Main Engine no. 2 HTCW outlet	ROTEX	125 x 150.16	2016
Main Engine no. 2 LTCW inlet	ROTEX	125 x 150.16	2017
Main Engine no. 2 LTCW outlet	ROTEX	125 x 150.16	2017
Main Engine no. 3 HTCW inlet	ROTEX	125 x 150.16	2015
Main Engine no. 3 HTCW outlet	ROTEX	125 x 150.16	2015
Main Engine no. 3 LTCW inlet	ROTEX	125 x 150.16	2016
Main Engine no. 3 LTCW outlet	ROTEX	125 x 150.16	2015
Main Engine no. 4 HTCW inlet	ROTEX	125 x 150.16	2019
Main Engine no. 4 HTCW outlet	ROTEX	125 x 150.16	Unavailable
Main Engine no. 4 LTCW inlet	Masterflex	125 x 150.16	2020, month unavailable
Main Engine no. 4 LTCW outlet	Masterflex	125 x 150.16	2020, month unavailable
Diesel generator no. 1 HTCW inlet	ROTEX	80 x 150.16	2020, month unavailable
Diesel generator no. 1 HTCW outlet	Eagle Burgmann	100x150.16	2005, month unavailable
Diesel generator no. 1 LTCW inlet	ROTEX	100x150.16	2005, month unavailable.
Diesel generator no. 1 LTCW outlet	ROTEX	100x150.16	2020, month unavailable.
Diesel generator no. 1 LO outlet to filter	Ellaflex	100x150.16	2020, month unavailable
Diesel generator no. 1 LO inlet from filter	Ellaflex	100x150.16	2019, month unavailable.
Diesel generator no. 2 HTCW inlet	ROTEX	100x150.16	2022, month unavailable.
Diesel generator no. 2 HTCW outlet	ROTEX	100x150.16	2019
Diesel generator no. 2 LTCW inlet	ROTEX	100x150.16	2005
Diesel generator no. 2 LTCW outlet	ROTEX	100x150.16	2012
Diesel generator no. 2 LO outlet to filter	Ellaflex	100 x 150.16	2020
Diesel generator no. 2 LO inlet from filter	Ellaflex	100 x 150.16	2020

1, a – (i) any existing REJs found that had been installed when they were older than eight months from the date of manufacture:

Please find below the associated table.

KiwiRail notes that only some of the REJs which are installed onboard Kaitaki are safety critical, and certainly not all. The list below is those REJs installed onboard at the time of the incident.

Column in end indicates which components were over eight months old from the date of manufacture.

Install Location	Model at the time if Incident	Size	Date of Manufacture	Existing REJs Older than 8 months
Main Engine no. 1 HTCW inlet	ROTEX	125 x 150.16	2015	Yes.
Main Engine no. 1 HTCW outlet	ROTEX	125 x 150.16	2007	Yes
Main Engine no. 1 LTCW inlet	ROTEX	125 x 150.16	2020	Yes
Main Engine no. 1 LTCW outlet	ROTEX	125 x 150.16	2017	Yes
Main Engine no. 2 HTCW inlet	ROTEX	125 x 150.16	2017	Yes
Main Engine no. 2 HTCW outlet	ROTEX	125 x 150.16	2016	Yes
Main Engine no. 2 LTCW inlet	ROTEX	125 x 150.16	2017	Yes
Main Engine no. 2 LTCW outlet	ROTEX	125 x 150.16	2017	Yes
Main Engine no. 3 HTCW inlet	ROTEX	125 x 150.16	2015	Yes
Main Engine no. 3 HTCW outlet	ROTEX	125 x 150.16	2015	Yes
Main Engine no. 3 LTCW inlet	ROTEX	125 x 150.16	2016	Yes
Main Engine no. 3 LTCW outlet	ROTEX	125 x 150.16	2015	Yes
Main Engine no. 4 HTCW inlet	ROTEX	125 x 150.16	2019	Yes
Main Engine no. 4 HTCW outlet	ROTEX	125 x 150.16	Unavailable	DOM is unavailable
Main Engine no. 4 LTCW inlet	Masterflex	125 x 150.16	2020, month unavailable	Yes
Main Engine no. 4 LTCW outlet	Masterflex	125 x 150.16	2020, month unavailable	Yes
Diesel generator no. 1 HTCW inlet	ROTEX	80 x 150.16	2020, month unavailable	Yes
Diesel generator no. 1 HTCW outlet	Eagle Burgmann	100x150.16	2005, month unavailable.	Yes
Diesel generator no. 1 LTCW inlet	ROTEX	100x150.16	2005, month unavailable.	Yes
Diesel generator no. 1 LTCW outlet	ROTEX	100x150.16	2020, month unavailable.	Yes
Diesel generator no. 1 LO outlet to filter	Ellaflex	100x150.16	2020, month unavailable	Yes
Diesel generator no. 1 LO inlet from filter	Ellaflex	100x150.16	2019, month unavailable.	Yes
Diesel generator no. 2 HTCW inlet	ROTEX	100x150.16	2022, month unavailable.	Yes
Diesel generator no. 2 HTCW outlet	ROTEX	100x150.16	2019	Yes.

Diesel generator no. 2 LTCW inlet	ROTEX	100x150.16	2005	Yes
Diesel generator no. 2 LTCW outlet	ROTEX	100x150.16	2012	Yes
Diesel generator no. 2 LO outlet to filter	Ellaflex	100 x 150.16	2020	Yes
Diesel generator no. 2 LO inlet from filter	Ellaflex	100 x 150.16	2020	Yes

1, a – (ii) any existing REJs found that had been installed when older than four years from date of manufacture

Please find below the relevant table:

Install Location	Model at the time if Incident	Size	Date of Manufacture	Existing REJs Older than 4 Years from DoM
Main Engine no. 1 HTCW inlet	ROTEX	125 x 150.16	2015	Yes
Main Engine no. 1 HTCW outlet	ROTEX	125 x 150.16	2007	Yes
Main Engine no. 1 LTCW inlet	ROTEX	125 x 150.16	2020	No
Main Engine no. 1 LTCW outlet	ROTEX	125 x 150.16	2017	Yes
Main Engine no. 2 HTCW inlet	ROTEX	125 x 150.16	2017	Yes
Main Engine no. 2 HTCW outlet	ROTEX	125 x 150.16	2016	Yes
Main Engine no. 2 LTCW inlet	ROTEX	125 x 150.16	2017	Yes
Main Engine no. 2 LTCW outlet	ROTEX	125 x 150.16	2017	Yes
Main Engine no. 3 HTCW inlet	ROTEX	125 x 150.16	2015	Yes
Main Engine no. 3 HTCW outlet	ROTEX	125 x 150.16	2015	Yes
Main Engine no. 3 LTCW inlet	ROTEX	125 x 150.16	2016	Yes
Main Engine no. 3 LTCW outlet	ROTEX	125 x 150.16	2015	Yes
Main Engine no. 4 HTCW inlet	ROTEX	125 x 150.16	2019	No
Main Engine no. 4 HTCW outlet	ROTEX	125 x 150.16	Unavailable	Info Unavailable
Main Engine no. 4 LTCW inlet	Masterflex	125 x 150.16	2020, month unavailable	No
Main Engine no. 4 LTCW outlet	Masterflex	125 x 150.16	2020, month unavailable	No
Diesel generator no. 1 HTCW inlet	ROTEX	80 x 150.16	2020	No
Diesel generator no. 1 HTCW outlet	Eagle Burgmann	100x150.16	2005	Yes

Diesel generator no. 1 LTCW inlet	ROTEX	100x150.16	2005	Yes
Diesel generator no. 1 LTCW outlet	ROTEX	100x150.16	2020	No
Diesel generator no. 1 LO outlet to filter	Ellaflex	100x150.16	2020, no month	No
Diesel generator no. 1 LO inlet from filter	Ellaflex	100x150.16	2019, no month	No
Diesel generator no. 2 HTCW inlet	ROTEX	100x150.16	2022	No
Diesel generator no. 2 HTCW outlet	ROTEX	100x150.16	2019	No
Diesel generator no. 2 LTCW inlet	ROTEX	100x150.16	2005	Yes
Diesel generator no. 2 LTCW outlet	ROTEX	100x150.16	2012	Yes
Diesel generator no. 2 LO outlet to filter	Ellaflex	100 x 150.16	2020	No
Diesel generator no. 2 LO inlet from filter	Ellaflex	100 x 150.16	2020	No

1, a - (iii) any existing REJs found that had been in use for more than four years from the date of install.

Please find below the relevant table:

Install Location	Model at the time if Incident	Size	Date of Installation	Existing REJs Older than 4 Years from Date of Installation
Main Engine no. 1 HTCW inlet	ROTEX	125 x 150.16	13.08.21	No
Main Engine no. 1 HTCW outlet	ROTEX	125 x 150.16	13.08.21	No
Main Engine no. 1 LTCW inlet	ROTEX	125 x 150.16	13.08.21	No
Main Engine no. 1 LTCW outlet	ROTEX	125 x 150.16	13.08.21	No
Main Engine no. 2 HTCW inlet	ROTEX	125 x 150.16	27.06.17	Yes
Main Engine no. 2 HTCW outlet	ROTEX	125 x 150.16	27.06.17	Yes
Main Engine no. 2 LTCW inlet	ROTEX	125 x 150.16	27.06.17	Yes
Main Engine no. 2 LTCW outlet	ROTEX	125 x 150.16	27.06.17	Yes
Main Engine no. 3 HTCW inlet	ROTEX	125 x 150.16	3.08.21	No
Main Engine no. 3 HTCW outlet	ROTEX	125 x 150.16	3.08.21	No

Main Engine no. 3 LTCW inlet	ROTEX	125 x 150.16	3.08.21	No
Main Engine no. 3 LTCW outlet	ROTEX	125 x 150.16	3.08.21	No
Main Engine no. 4 HTCW inlet	ROTEX	125 x 150.16	3.08.21	No
Main Engine no. 4 HTCW outlet	ROTEX	125 x 150.16	3.08.21	No
Main Engine no. 4 LTCW inlet	Masterflex	125 x 150.16	3.08.21	No
Main Engine no. 4 LTCW outlet	Masterflex	125 x 150.16	3.08.21	No
Diesel generator no. 1 HTCW inlet	ROTEX	80 x 150.16	9.11.18	Yes
Diesel generator no. 1 HTCW outlet	Eagle Burgmann	100x150.16	9.11.18	Yes
Diesel generator no. 1 LTCW inlet	ROTEX	100x150.16	9.11.18	Yes
Diesel generator no. 1 LTCW outlet	ROTEX	100x150.16	9.11.18	Yes
Diesel generator no. 1 LO outlet to filter	Ellaflex	100x150.16	9.11.18	Yes
Diesel generator no. 1 LO inlet from filter	Ellaflex	100x150.16	9.11.18	Yes
Diesel generator no. 2 HTCW inlet	ROTEX	100x150.16	9.11.18	Yes
Diesel generator no. 2 HTCW outlet	ROTEX	100x150.16	9.11.18	Yes
Diesel generator no. 2 LTCW inlet	ROTEX	100x150.16	9.11.18	Yes
Diesel generator no. 2 LTCW outlet	ROTEX	100x150.16	9.11.18	Yes
Diesel generator no. 2 LO outlet to filter	Ellaflex	100 x 150.16	9.11.18	Yes
Diesel generator no. 2 LO inlet from filter	Ellaflex	100 x 150.16	9.11.18	Yes

1, a - (iv) Details of where each and every of the above REJ was and what function it serves/d and on which ship.

Following is the detail of each critical REJ and the function it serves on the vessel Kaitaki:

Install Location	Purpose REJs Served
Main Engine no. 1 HTCW inlet	Supplying cool water to the engine.
Main Engine no. 1 HTCW outlet	Aiding in directing the hot water from the engine outlet, for cooling
Main Engine no. 1 LTCW inlet	Supplying cool water to lube oil (LO) and Air Cooler of the engine.
Main Engine no. 1 LTCW outlet	Directing hot water out from LO and air cooler to the coolers
Main Engine no. 2 HTCW inlet	Supplying cool water to the engine.
Main Engine no. 2 HTCW outlet	Aiding in directing the hot from the engine outlet, for cooling
Main Engine no. 2 LTCW inlet	Supplying cool water to the engine.

Main Engine no. 2 LTCW outlet	Directing hot water out from LO and air cooler to the coolers
Main Engine no. 3 HTCW inlet	Supplying cool water to the engine.
Main Engine no. 3 HTCW outlet	Aiding in directing the hot from the engine outlet, for cooling
Main Engine no. 3 LTCW inlet	Supplying cool water to LO and Air Cooler of the engine.
Main Engine no. 3 LTCW outlet	Directing hot water out from LO and air cooler to the coolers
Main Engine no. 4 HTCW inlet	Supplying cool water to the engine.
Main Engine no. 4 HTCW outlet	Aiding in directing the hot from the engine outlet, for cooling
Main Engine no. 4 LTCW inlet	Supplying cool water to the engine.
Main Engine no. 4 LTCW outlet	Directing hot water out from LO and air cooler to the coolers
Diesel generator no. 1 HTCW inlet	Supplying cool water to the engine.
Diesel generator no. 1 HTCW outlet	Aiding in directing the hot from the engine outlet, for cooling
Diesel generator no. 1 LTCW inlet	Supplying cool water to LO and Air Cooler of the engine.
Diesel generator no. 1 LTCW outlet	Directing hot water out from LO and air cooler to the coolers
Diesel generator no. 1 LO outlet to filter	Lube oil pump discharge to LO filter before entry to the engine
Diesel generator no. 1 LO inlet from filter	Lube oil entry to engine after LO filter
Diesel generator no. 2 HTCW inlet	Supplying cool water to the engine.
Diesel generator no. 2 HTCW outlet	Directing hot water out from LO and air cooler to the coolers
Diesel generator no. 2 LTCW inlet	Supplying cool water to LO and Air Cooler of the engine.
Diesel generator no. 2 LTCW outlet	Directing hot water out from LO and air cooler to the coolers
Diesel generator no. 2 LO outlet to filter	Lube oil pump discharge to LO filter before entry to the engine
Diesel generator no. 2 LO inlet from filter	Lube oil entry to engine after LO filter

1, b - Details of the replacement REJs - as in 'of all safety critical rubber expansion joints on Kaitaki and the rest of the fleet', including:

1, b – (i) any replacement REJs that at the time of install, were older than 8 months from the date of manufacture:

Please find the details below, please note replacement REJ's were sourced from manufacturer Elaflex with tentative guidance around storage, replacement & life span of the REJ's.

As noted previously, Elaflex has no guidance towards 8 months age (max) as the criteria for installation of the REJ's.

Below is the list of new safety critical REJs, which were more than 8 months from the date of manufacture, however as noted that 8 month timeframe is not the industry recommendation.

Install Location	Make	Model	Size	Manufacture Date	Install Date	Older than 8 months
Main Engine no. 1 HTCW inlet	Elaflex	125x150.16, Red Band	125 x 150.16	2022	28.02.23	Yes
Main Engine no. 1 HTCW outlet	Elaflex	125x150.16, Red Band	125 x 150.16	2022	23.02.23	Yes
Main Engine no. 1 LTCW inlet	Elaflex	125x150.16, Red Band	125 x 150.16	2022	21.03.23	Yes
Main Engine no. 1 LTCW outlet	Elaflex	125x150.16, Red Band	125 x 150.16	2022	21.03.23	Yes

Main Engine no. 2 HTCW inlet	Ellaflex	125x150.16, Red Band	125 x 150.16	2022	28.02.23	Yes
Main Engine no. 2 HTCW outlet	Ellaflex	125x150.16, Red Band	125 x 150.16	2022	28.02.23	Yes
Main Engine no. 2 LTCW inlet	Ellaflex	125x150.16, Red Band	125 x 150.16	2022	21.02.23	Yes
Main Engine no. 2 LTCW outlet	Ellaflex	125x150.16, Red Band	125 x 150.16	2022	21.02.23	Yes
Main Engine no. 3 HTCW inlet	Ellaflex	125x150.16, Red Band	125 x 150.16	2022	March 23	Yes
Main Engine no. 3 HTCW outlet	Ellaflex	150x150.16, Red Band	125 x 150.16	2022	March 23	Yes
Main Engine no. 3 LTCW inlet	Ellaflex	125x150.16, Red Band	125 x 150.16	2022	March 23	Yes
Main Engine no. 3 LTCW outlet	Ellaflex	125x150.16, Red Band	125 x 150.16	2022	March 23	Yes
Main Engine no. 4 HTCW inlet	Ellaflex	125x150.16, Red Band	125 x 150.16	2022	27.02.23	Yes
Main Engine no. 4 HTCW outlet	Ellaflex	150x150.16, Red Band	125 x 150.16	2022	23.02.23	Yes
Main Engine no. 4 LTCW inlet	Ellaflex	DN 125 PN16 x 150 lg (Water 95°C)	125 x 150.16	2020	08.03.23	Yes
Main Engine no. 4 LTCW outlet	Ellaflex	DN 125 PN16 x 150 lg (Water 95°C)	125 x 150.16	2020	08.03.23	Yes
Diesel generator no. 1 HTCW inlet	Ellaflex	80x150.16, Red Band	80 x 150.16	2020	08.03.23	Yes
Diesel generator no. 1 HTCW outlet	Ellaflex	100x150.16, Red Band	100x15 0.16	2020	27.02.23	Yes
Diesel generator no. 1 LTCW inlet	Ellaflex	100x150.16, Red Band	100x15 0.16	2022	24.02.23	Yes
Diesel generator no. 1 LTCW outlet	Ellaflex	100x150.16, Red Band	100x15 0.16	2020	27.02.23	Yes
Diesel generator no. 1 LO outlet to filter	Ellaflex	ERV-GS 100x 150.16	100x15 0.16	2022	29.03.23	Yes
Diesel generator no. 1 LO inlet from filter	Ellaflex	ERV-GS 100x 150.16	100x15 0.16	2022	29.03.23	Yes
Diesel generator no. 2 HTCW inlet	Ellaflex	80x150.16, Red Band	100x15 0.16	2022	08.03.23	Yes
Diesel generator no. 2 HTCW outlet	Ellaflex	100x150.16, Red Band	100x15 0.16	2022	27.02.23	Yes
Diesel generator no. 2 LTCW inlet	Ellaflex	100x150.16, Red Band	100x15 0.16	2022	24.02.23	Yes
Diesel generator no. 2 LTCW outlet	Ellaflex	100x150.16, Red Band	100x15 0.16	2022	27.02.23	Yes
Diesel generator no. 2 LO outlet to filter	Ellaflex	ERV-GS 100x 150.16	100 x 150.16	2022	29.03.23	Yes
Diesel generator no. 2 LO inlet to filter	Ellaflex	ERV-GS 100x 150.16	100 x 150.6	2020	29.03.23	Yes

1, b - (ii) any replacement REJs that at the time of install, were older than four years from the date of manufacture.

Please find the details below. There are no replacement REJ's on Kaitaki that are more than four years from date of manufacture:

Install Location	Make	Model	Size	Manufacture Date
Main Engine no. 1 HTCW inlet	Ellaflex	125x150.16, Red Band	125 x 150.16	2022
Main Engine no. 1 HTCW outlet	Ellaflex	125x150.16, Red Band	125 x 150.16	2022
Main Engine no. 1 LTCW inlet	Ellaflex	125x150.16, Red Band	125 x 150.16	2022
Main Engine no. 1 LTCW outlet	Ellaflex	125x150.16, Red Band	125 x 150.16	2022
Main Engine no. 2 HTCW inlet	Ellaflex	125x150.16, Red Band	125 x 150.16	2022
Main Engine no. 2 HTCW outlet	Ellaflex	125x150.16, Red Band	125 x 150.16	2022
Main Engine no. 2 LTCW inlet	Ellaflex	125x150.16, Red Band	125 x 150.16	2022
Main Engine no. 2 LTCW outlet	Ellaflex	125x150.16, Red Band	125 x 150.16	2022
Main Engine no. 3 HTCW inlet	Ellaflex	125x150.16, Red Band	125 x 150.16	2022
Main Engine no. 3 HTCW outlet	Ellaflex	150x150.16, Red Band	125 x 150.16	2022
Main Engine no. 3 LTCW inlet	Ellaflex	125x150.16, Red Band	125 x 150.16	2022
Main Engine no. 3 LTCW outlet	Ellaflex	125x150.16, Red Band	125 x 150.16	2022
Main Engine no. 4 HTCW inlet	Ellaflex	125x150.16, Red Band	125 x 150.16	2022
Main Engine no. 4 HTCW outlet	Ellaflex	150x150.16, Red Band	125 x 150.16	2022
Main Engine no. 4 LTCW inlet	Ellaflex	DN 125 PN16 x 150 lg (Water 95°C)	125 x 150.16	2020
Main Engine no. 4 LTCW outlet	Ellaflex	DN 125 PN16 x 150 lg (Water 95°C)	125 x 150.16	2020
Diesel generator no. 1 HTCW inlet	Ellaflex	80x150.16, Red Band	80 x 150.16	2020
Diesel generator no. 1 HTCW outlet	Ellaflex	100x150.16, Red Band	100x150.16	2020
Diesel generator no. 1 LTCW inlet	Ellaflex	100x150.16, Red Band	100x150.16	2022
Diesel generator no. 1 LTCW outlet	Ellaflex	100x150.16, Red Band	100x150.16	2020
Diesel generator no. 1 LO outlet to filter	Ellaflex	ERV-GS 100x 150.16	100x150.16	2022
Diesel generator no. 1 LO inlet from filter	Ellaflex	ERV-GS 100x 150.16	100x150.16	2022
Diesel generator no. 2 HTCW inlet	Ellaflex	80x150.16, Red Band	100x150.16	2022
Diesel generator no. 2 HTCW outlet	Ellaflex	100x150.16, Red Band	100x150.16	2022
Diesel generator no. 2 LTCW inlet	Ellaflex	100x150.16, Red Band	100x150.16	2022
Diesel generator no. 2 LTCW outlet	Ellaflex	100x150.16, Red Band	100x150.16	2022
Diesel generator no. 2 LO outlet to filter	Ellaflex	ERV-GS 100x 150.16	100 x 150.16	2022

Diesel generator no. 2 LO inlet to filter	Elaflex	ERV-GS 100x 150.16	100 x 150.6	2020
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1, b - (iii) details of where each and every of the above REJs were and what function it serves/d and on which ship

The following is a list of safety critical REJs which were newly installed, post incident and their location/purpose served:

Install Location	Make	Model, newly installed	Purpose REJs Served
Main Engine no. 1 HTCW inlet	Elaflex	125x150.16, Red Band	Supplying cool water to the engine.
Main Engine no. 1 HTCW outlet	Elaflex	125x150.16, Red Band	Aiding in directing the hot from the engine outlet, for cooling
Main Engine no. 1 LTCW inlet	Elaflex	125x150.16, Red Band	Supplying cool water to LO and Air Cooler of the engine.
Main Engine no. 1 LTCW outlet	Elaflex	125x150.16, Red Band	Directing hot water out from LO and air cooler to the coolers
Main Engine no. 2 HTCW inlet	Elaflex	125x150.16, Red Band	Supplying cool water to the engine.
Main Engine no. 2 HTCW outlet	Elaflex	125x150.16, Red Band	Aiding in directing the hot from the engine outlet, for cooling
Main Engine no. 2 LTCW inlet	Elaflex	125x150.16, Red Band	Supplying cool water to the engine.
Main Engine no. 2 LTCW outlet	Elaflex	125x150.16, Red Band	Directing hot water out from LO and air cooler to the coolers
Main Engine no. 3 HTCW inlet	Elaflex	125x150.16, Red Band	Supplying cool water to the engine.
Main Engine no. 3 HTCW outlet	Elaflex	150x150.16, Red Band	Aiding in directing the hot from the engine outlet, for cooling
Main Engine no. 3 LTCW inlet	Elaflex	125x150.16, Red Band	Supplying cool water to LO and Air Cooler of the engine.
Main Engine no. 3 LTCW outlet	Elaflex	125x150.16, Red Band	Directing hot water out from LO and air cooler to the coolers
Main Engine no. 4 HTCW inlet	Elaflex	125x150.16, Red Band	Supplying cool water to the engine.
Main Engine no. 4 HTCW outlet	Elaflex	150x150.16, Red Band	Aiding in directing the hot from the engine outlet, for cooling
Main Engine no. 4 LTCW inlet	Elaflex	DN 125 PN16 x 150 lg (Water 95°C)	Supplying cool water to the engine.
Main Engine no. 4 LTCW outlet	Elaflex	DN 125 PN16 x 150 lg (Water 95°C)	Directing hot water out from LO and air cooler to the coolers
Diesel generator no. 1 HTCW inlet	Elaflex	80x150.16, Red Band	Supplying cool water to the engine.
Diesel generator no. 1 HTCW outlet	Elaflex	100x150.16, Red Band	Aiding in directing the hot from the engine outlet, for cooling
Diesel generator no. 1 LTCW inlet	Elaflex	100x150.16, Red Band	Supplying cool water to LO and Air Cooler of the engine.
Diesel generator no. 1 LTCW outlet	Elaflex	100x150.16, Red Band	Directing hot water out from LO and air cooler to the coolers
Diesel generator no. 1 LO outlet to filter	Elaflex	ERV-GS 100x 150.16	Lube oil pump discharge to LO filter before entry to the engine

Diesel generator no. 1 LO inlet from filter	Elaflex	ERV-GS 100x 150.16	Lube oil entry to engine after LO filter
Diesel generator no. 2 HTCW inlet	Elaflex	80x150.16, Red Band	Supplying cool water to the engine.
Diesel generator no. 2 HTCW outlet	Elaflex	100x150.16, Red Band	Directing hot water out from LO and air cooler to the coolers
Diesel generator no. 2 LTCW inlet	Elaflex	100x150.16, Red Band	Supplying cool water to LO and Air Cooler of the engine.
Diesel generator no. 2 LTCW outlet	Elaflex	100x150.16, Red Band	Directing hot water out from LO and air cooler to the coolers
Diesel generator no. 2 LO outlet to filter	Elaflex	ERV-GS 100x 150.16	Lube oil pump discharge to LO filter before entry to the engine
Diesel generator no. 2 LO inlet from filter	Elaflex	ERV-GS 100x 150.16	Lube oil entry to engine after LO filter

1, c - details of any intervention taken re any REJs that was not specifically part of the actions as per TAIC 2.5. For instance, KR's findings from its REJ replacement may have prompted it to make further interventions or amend audit or other documents.

In addition to the actions described in TAIC report section 2.5, KiwiRail has taken several additional steps in response to the incident.

Where they specifically relate to the management of the REJs in the fleet. these steps include:

- KiwiRail's asset management platform (AMOS) was further enhanced by identifying all REJs and linking them to unique component number. The job description field has been improved, and the inspection regime has been made more stringent, with inspections now conducted every month for *Kaitaki*. They have been tagged as safety critical as well. All expansion joints onboard all vessels were tagged individually for their date of installation.
- Fleet Memo 522 with all technical details towards management of REJ's, storage and lifecycle management was released and circulated fleet-wide, specifying 4-4-year requirement (from date of manufacture to install and from install to replacement) This requirement was based over and above the maker's guidance. Elaflex was identified as selected maker for the expansion joints.
- KiwiRail has taken steps to install larger diameter recovery lines with higher capacity for filling the cooling water expansion tanks onboard *Kaitaki* to facilitate faster recover method in the event of any unforeseen LT /HT water leak.
- Additional spare orders were placed for REJ's in fleet
- A safety bulletin was issued fleet-wide. This bulletin emphasizes the steps to take in the event of such incidents. Furthermore, the Master Decision Support System document has been appropriately amended.

And in general terms, as publicly announced KiwiRail has taken several other steps to ensure fleet reliability, these include:

- Continuing our schedule of deep-maintenance checks in wet and dry dock environments. These let us turn the ships completely off so we can inspect moving parts and areas that would be dangerous when the ships are running.
- Immediately after the Kaitaiki, January loss of power incident Interislander undertook an asset review and hired independent experts Det Norske Veritas (DNV) to work with our team to peer review the asset management of our entire fleet. DNV will review the critical equipment of all vessels and their routines. Included in work scope is FMEA (Failure Mode Effects Analysis) and assess all single point failures in components onboard all fleet vessels.
- Several changes to safety management system requirements and procedures were undertaken by company to enhance technical management activity and oversight within the fleet.
- Reporting requirements, maintenance KPI requirements and management oversight into technical activity onboard vessels have been enhanced.

1, d (i – ii) - details of any cracking and delamination found in any existing or replacement REJs, or any REJs that it was intended to use as replacements, in any way similar to what TAIC noted.

We can advise that no cracking, delamination, or other such defects have been found.

1, e - regards what TAIC noted was “the planned maintenance system” that showed the ruptured REJ was due for replacement about two months before its failure.

Details of any other REJ identified in any checks as overdue for replacement – either overdue by TAIC’, by KiwiRail’s measure, or by the manufacturers measure.

The following work orders for replacement of REJs were due on the date of incident. This was required by KiwiRail’s own requirement for replacement (i.e. they were not mandated by the manufacturer).

- ME2 MAIN ENGINE STBD FWD. COMPENSATOR RENEWAL.
- DG2 DIESEL GENERATOR STARBOARD.
- DG1 DIESEL GENERATOR PORT. This was the compensator which failed.

1, f - noting that Kiwirail has told RNZ it had a range of joints made by a range of manufacturers with a range of standards, or no standards, please detail for all of the Kaitaki’s safety critical REJs, the manufacturer, the model identifier of REJ, and the manufacturer’s recommendation or mandatory “install by” and “replace by” dates.

As noted at the start of this letter, at the time of incident, none of the manufacturers of our REJ’s had any definite guidance for maritime operators as to what should be ‘install by’ date and ‘replace by’ date. The table provided above provides a guideline, however this is generic guidance from the manufacturers is tailored towards operating conditions and operator’s own requirements should define such intervals.

KiwiRail’s standard is now a four yearly change over routine.

2 – Please provide any overall report including all attachments and appendices, regarding the inspection of “all rubber joints”, and the audit of “critical equipment on our ferries”, and details of a number of additional steps ‘taken in response.

Please see the attached additional documentation.

We trust this satisfies your request, please feel free to come back to me if further interpretation or the data, or additional information is required.

You have the right to seek an investigation and review of this response by the Ombudsman, in accordance with section 28(3) of the Act. The relevant details can be found on the Ombudsman’s website: www.ombudsman.parliament.nz.

Yours sincerely



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