ALL 50,000 metal claws holding the power-supplying “third rail” on the North-South and East-West MRT lines are likely to be replaced, in what appears to be a further step to prevent breakdowns in train services.

The Straits Times understands that rail operator SMRT has started sourcing for new-generation “positive lock” claws. These can be bolted onto the rail sleepers – structures that support the track – and are far less likely to be undone by vibration over time.

Currently, the claws on the two ageing lines are not bolted but are merely held in place by the weight of the “third rail”, which supplies electricity to power the trains.

In the major breakdowns last December when more than 220,000 commuters were affected by service disruptions lasting five to seven hours, 21 of these claws along a stretch of the North-South Line were found to have been dislodged. This caused a misalignment of the “third rail” that, in turn, interrupted the power supply to the trains.

Since the breakdowns, SMRT has used plastic cable ties to fasten all the claws, which are spaced about 6m apart along each direction of the 90km network.

SMRT would not comment on the possibility of replacing the old claws with the new ones, which are already used in its newer lines such as the Circle Line and Changi Airport Extension of the East-West Line.

A spokesman said the government-appointed inquiry that starts next week will be looking into the issues connected with the breakdown. “It is best that all findings and recommendations be revealed through the Committee of Inquiry proceedings,” the spokesman said.

But sources said the claw replacement move is highly probable as the cable ties are only an interim measure.

The replacement exercise is estimated to cost between $5 million and $15 million, excluding labour. As to who pays for this, urban transport expert Park Byung Joon said the answer is not straightforward in this case.

He noted that under an old financial arrangement, the Government pays for the rail infrastructure and SMRT runs and maintains the system.

But in 2010, a new financial regime was put in place in which the Government assumed ownership of operating assets, leasing them to the operator for a fee that will eventually fund asset replacement. SBS Transit’s operating contract for the upcoming Downtown Line falls under this new arrangement.

“Is it an interesting question, and I don’t know if there is a right answer to that,” said Dr Park, who reckons replacement of the claws falls in a grey area between maintenance and an infrastructural upgrade.

“Should it be funded by taxpayers, or profits that the company had accumulated over the years?” asked Dr Park, who is programme head of the Master of Science programme in urban transport management at SIM University.

“Ultimately, there has to be consensus among all the interested parties,” he said.

But Dr Lee Der-Horng, a transport researcher at the National University of Singapore, said the Government should pay, “as this is an infrastructural work”.

However, what is of greater concern to him is whether the claws are the only problem.

He called for investigations to go deeper to find the root causes of the breakdowns, like vibration. Preliminary findings by SMRT indicate that strong vibration along the city stretch of the North-South Line may have contributed to the claw dislodgement.

Tracks in the area are built on so-called “floating slabs”, designed to isolate nearby high-rise buildings from the vibrations of passing trains.

CHRISTOPHER TAN