Sleeper bottom stabilizer “ROB X”

Preventing track depression of the next generation

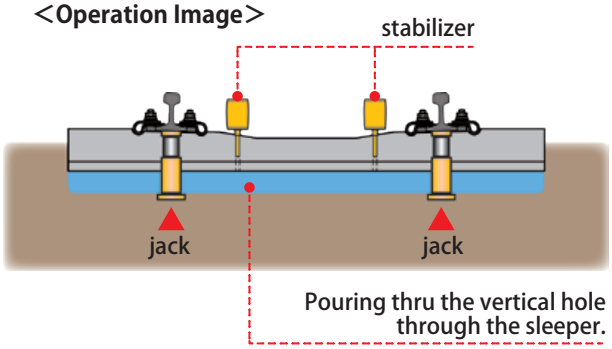
Hayashi Soji Corporation

The stabilizer specialized in track maintenance at grain refined ballast area, Suitable for preventing track depression. Brand new track maintenance method without using “Tie-Tamper”

- New track maintenance method which easily applied at old and grain refined ballast area.
- The stabilizer made of moisture curing urethane resin. The stabilizer will harden by reacting the moisture in the air and surroundings.
- The hardening will start around 15 minutes after pouring and initial strength will be obtained in about one hour.
- The operation without loosening the ballast is possible . The lateral resistance value will be increased by 30 % after application.
- The strength of sleeper bottom will be almost same as the track pad.
- Can be applied on wet condition.
- Multiple applications are possible.

1Liter Aluminum pouch ×10 set

＜Operation Image＞



Create the space for pouring the stabilizer by lifting sleeper with jack.

Pour the stabilizer from the top of vertical hole through the sleeper.

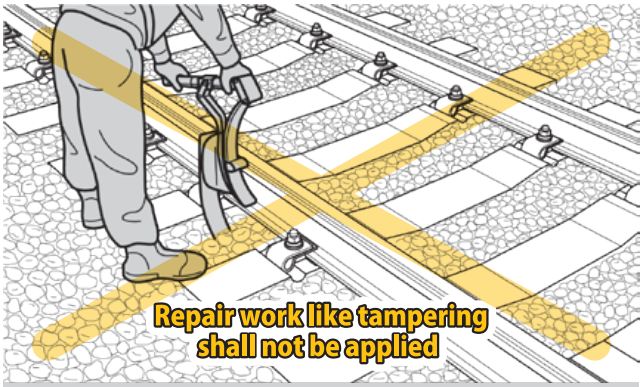
Hardened stabilizer prevent the depression of the track at the train passing.

Cautions for the operation.

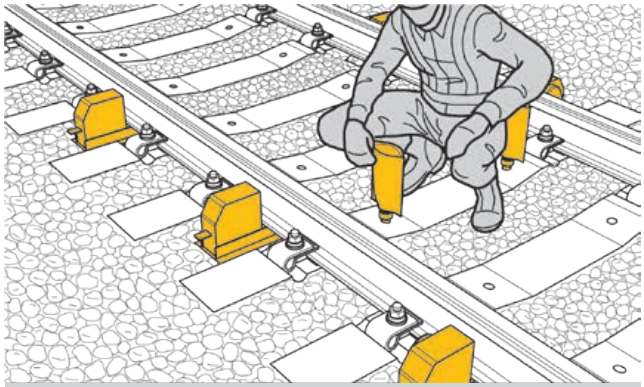
- Applicable ballast condition should be fouling index 13% and over.
- Please use the stabilizer with the sleepers with vertical holes.
- Please refrain from using temperature under 5 deg. C.
- Standing time after pouring should ba about 60 minutes.
- Please pour through 2 vertical holes through the sleeper simultaneously in order to fill stabilizer surely on the sleeper bottom face.
- Please refrain from using on bad conditioned sleeper.
- Due to the character of the material, the viscosity of stabilizer shall be low under the high temperature condition and shall be high under low temperature condition.

CT060-2309

Simplification of Operation



By changing track maintenance by normal lifting operation to the application of " ROB X ", the simplification of operation and cost-down will be materialized.



- No tampering and/or compacting are necessary.
- Labor can be saved due to simple operation.
- Operation during summer-time are possible.

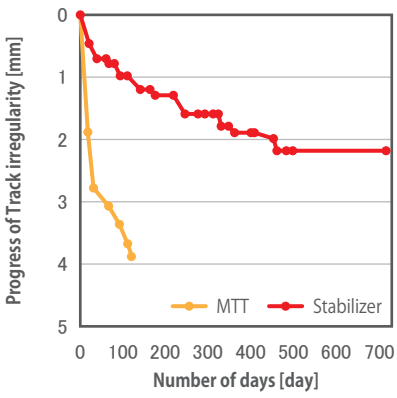
The pictures of operation and status of track slippage.

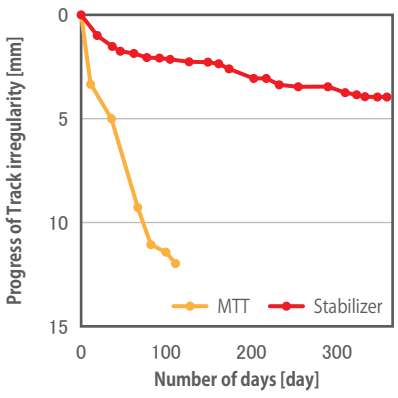
No.1	No.2	No.3
Joint depression	Joint depression/mud pumping	Mud pumping/water bearing
PC sleeper	wooden sleeper	PC sleeper

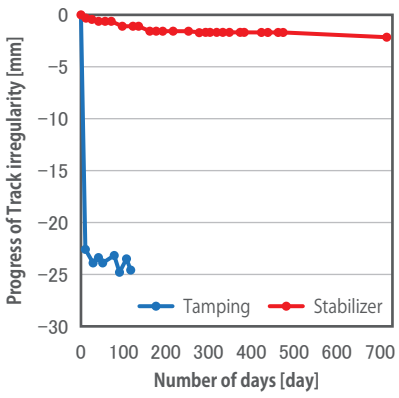
Picture of operation

Piercing on wooden sleeper

Conditions of mud pumping/water bearing







- Under the assumption that track maintenance shall be performed at the 10mm depression of the track, the cost-reduction and simplification of operation have been verified by the repair cost per joint.
- The operation shall be done by piercing on wooden sleeper and synthetic sleeper.

No.1	No.2	No.3
After 760 days	After 383 days	After 708 days
70% reduction of track depression	80% reduction of track depression	99% reduction of track depression

Working condition of "ROB X"

Check & confirm the ballast conditions (such as repeatedly repaired spot)

- Limited numbers of ballasts with sharp corner
- Filled with mud
- Sleeper shaped caking layer

The effect of tamping are limited at grain refined ballast area.


Before application /caking(mud)


After application

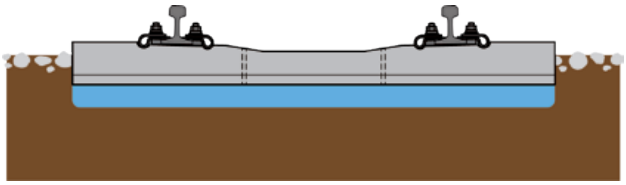

Repeatedly repaired spot


Mud pumping


Grain refined ballast

Applicable condition

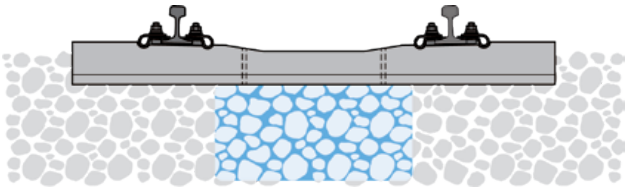
Condition of ballast **Bad**



"ROB X" will spread over the sleeper bottom without loosening caking layer
and prevent the primary subsidence by creating the supporting layer.

Not applicable condition

Condition of ballast **Good**



"ROB X" penetrate right under the sleeper.
There is the risk of breaking the sleeper because the sleeper will be supported only partially.
The application of "ROB X " may have a negative influence on some maintenance operation in this condition.

	Recommendable area		Application not recommended
Condition of ballast	Grade of Deterioration [Big]	Grade of Deterioration [Medium]	Grade of Deterioration [Small]
			
Depth of penetration			
	Penetration: shallow (less than 50mm)	Penetration: shallow (less than 50mm)	Penetration : deep (more than 100mm)

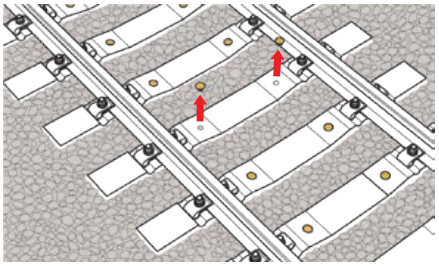
Application Manual

In case of sleeper with vertical holes

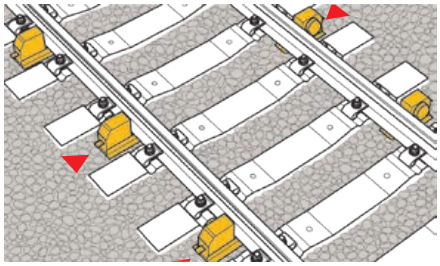
※When make vertical holes on Wooden/Synthetic sleeper, please make holes with 14mm or bigger diameter.

1 Removal of sleeper hole cap and cleaning the hole.

Remove the cap of vertical hole of PC sleeper and clean up inside of the hole.

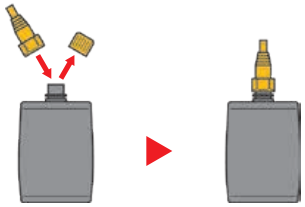


2 Lift up the track by jack



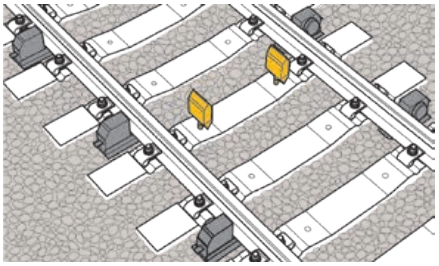
3 Preparation of "ROB X"

Remove the cap of container and change it to pouring nozzle.



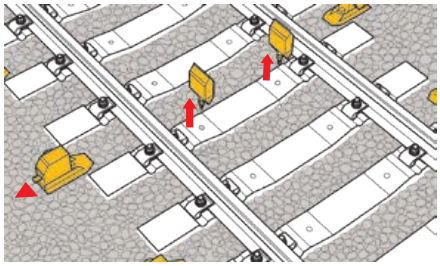
4 Pouring "ROB X"

Insert the nozzle into hole and pour in "ROB X" Pouring into 2 vertical holes at the same time.



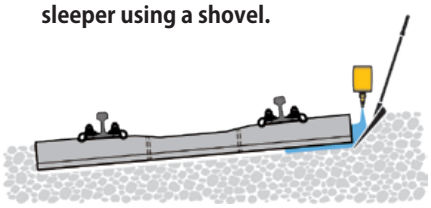
5 Removal of jack

Take out container and remove jack after more than 60 minutes of pouring " ROB X"



Application method for the area of big cant

1. Dig out the ballast of outside rail side of sleeper.
2. Pour into and break in the bottom of sleeper using a shovel.

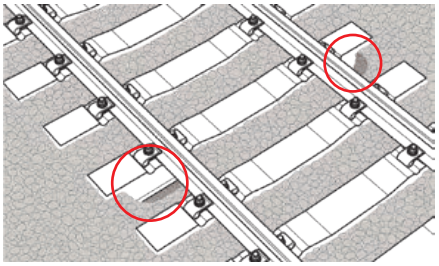


※It has been inspected in Kant 100

In case of normal sleeper.

1 Remove the ballast sleeper side

Dig out the ballast close to both sides of rail until the bottom face of sleepers appear.



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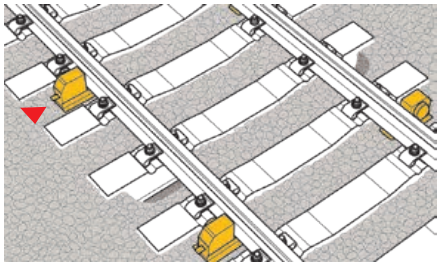

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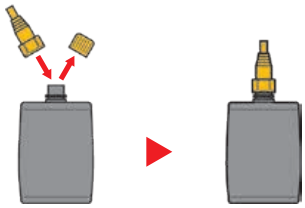
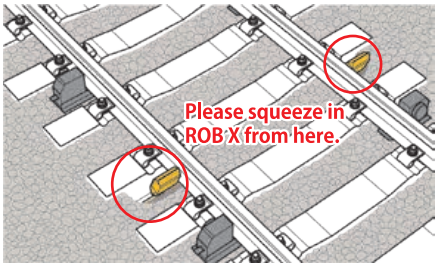


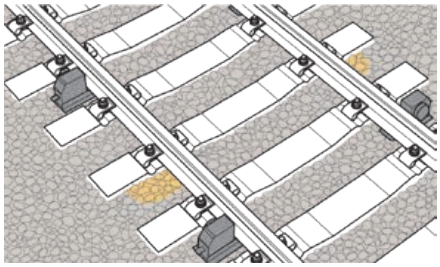
4 Pouring "ROB X"

Pour Rob-X into the space under the sleeper. Please pour from both sides at the same time. Please squeeze in ROB X.



5 Fill back the ballast

After pouring, close the inlet with nearby sand/soil in order not to leak out ROB X.



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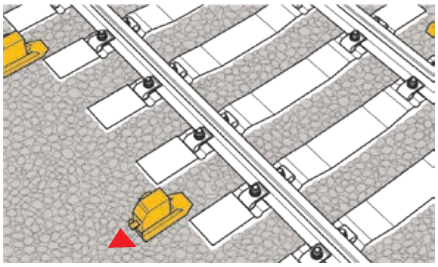

The ROB X pouring quantity shall be decided in accordance with the size of sleeper.

The disposal should be done as " Industrial waste"