Roads and People... for the Future

Safe, reliable and comfortable expressways connect people and regions respectively.
Aspiring ideas and sincere service bring new encounters and joy.
NEXCO-West Group will continue to innovate technology for the next 100 years, and strive to create new values.

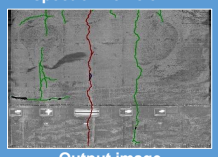
Our expressway history starts from Y1963, now we operate 3,603km
with 8,418 Bridges, 906 Tunnels, 1,406 Culverts and 313 Rest Areas.

Initiatives of Inspection Technology (Non-distractive methods)

Incorporating invisible ray

Vision with Infrared camera

Inspection vehicle

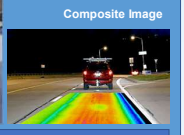


Output image
Recorded as colored lines

Key features

1) High vehicle speed running at 100 km/h.
2) High resolution of 0.2 mm width crack
3) In-visible light scanner

Tunnel liner Inspection with line censer
"eQ Doctor T"



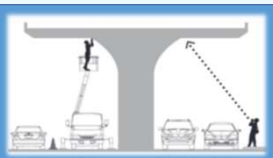
Con. slab top condition monitoring
"DTSS"
for cracks & delamination of bridge deck top

Pavement monitoring
"Smart Eagle"
for cracks & rutting of asphalt pavement

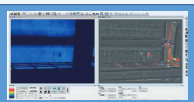
Key features

1) Under taken at normal driving speed
2) Deflection filter enables more clear imaging
3) Mounted on a normal vehicle

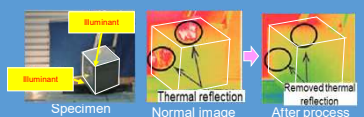
Road surface inspection
"DTSS"&"Smart Eagle"



With Traffic regulation | Without traffic regulation



Portable device and dedicated software



Specimen | Normal image | After process
Image improvement with filter

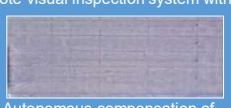
Key features

1) Improved resolution incorporated with deflection filter
2) Improved operability and safety without traffic regulation
3) Efficient assessment with dedicated software

Concrete slab inspection with infrared camera
"J system Evolution"

Remote visual inspection system with AI

Automatically synthesized photo with AI



Autonomous compensation of synthesized photo image with AI

Automatic assessment of surface condition with AI

Key features

1) Remote inspection (Max. distance 50~70m)
2) Alternative method for proximity inspection
3) Automatic and autonomous system with AI

High resolution camera with AI
"Auto CIMA"

West Nippon Expressway Company Limited

Operation & Maintenance of Inter-city Expressway Network

Renewal and Major Rehabilitation Projects

-Bridge, Viaduct, Tunnel & Cut slope-

Superstructure replacement :
Casting in place hollow slab deck→
Simple steel girder + Precast concrete slab

The environmental condition of the projects.
Conventional crane method seems inefficient in works schedule.

Assembling new superstructures beneath the existing superstructure.
During they are assembled, removal works of existing ones are under go.

After removal of superstructures, by jacking up assembled superstructures in one batch and connecting them simultaneously, the major pat of replacement works will be proceeded efficiently.

"Superstructure batch replacement with jack-up"

Cut slope reinforcement

Installing ***new ground anchors*** instead of ruptured anchors to maintain cut slope stability ***due to deterioration and additional ground forces generated over time.***

Concrete liner reinforcement

Reinforcement of ***cracked tunnel liners*** with aging and deterioration ***by carbon fiber sheet***

Invert installation

Reinforcement with ***installing invert*** to prevent pavement and liner ***from deformation by heaving***

Restoration project of damaged tunnel

Damaged by Fire : ***Amakoyama*** tunnel 2023.9.5~12.15

Flare caused by a car accident
(Hyogo Prefectural Police Department)

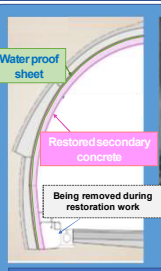
Damaged tunnel by blaze

Cracks on liner and burned cables

Debris over pavement

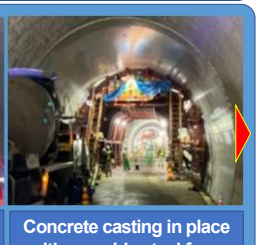
Damaged tunnel

Soundness assessment of liner condition
By hammer sounding, sample core test and pH test



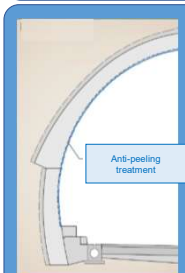
Removing damaged concrete of tunnel liner

Water proof sheet installation



Concrete casting in place with movable steel form

Tunnel liner restoration works



Cleansing surface for coating

Surface coating with resin

Surface treatment works against peeling off

Condition of entrance and inside of the westbound tunnel before resuming service

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