

# Kirari NINJA

Internal automatic image device of the vessel engine cylinder

It is the camera system which shot the image which is clear in the whole intercylinder part of large 2 stroke diesel engine without resolving. this system can take 360 degree photos of intercylinder with safely, easily and frequently of it.

System Model Name

DCLC-S01-A

DCLC-S01-B



Kirari NINJA main unit  
DCLC-SP-NJ1

Controller  
DCLC-SP-CT1



- There is not special work as it resolves apart for the engine head. It diminish a time, the cost, the hard work and reduces dangerous risks

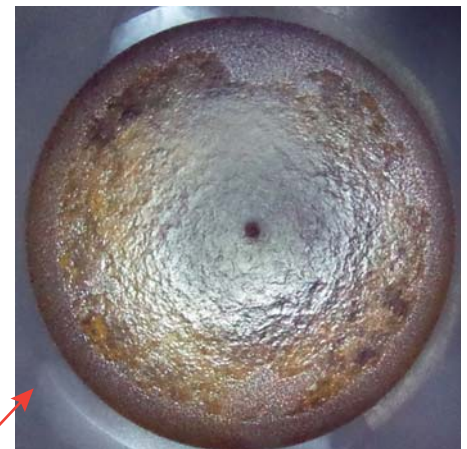
- Because it is possible to photograph in case of coming alongside the pier, it is possible to make a variation per historical data of every cylinder.
- The preventive maintenance to have sensed the sign of the trouble becomes possible.

## Purpose and use methods

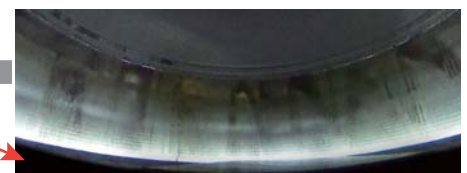
Currently there were two ways, ① a release check which removes a cylinder cover in the cylinder interior-check, and goes inside and checks ② a non-released check to peep into the inside from the exhaust-hole. It takes more than 10 hours for the release inspection operation or it drove and the load which hangs over the worker was big and also the test run was the hard-work of need ( it needs re-assemble the at some situations) .

**Kirari NINJA** System is set to upper part of the piston . It a shuttle ( One time piston up and down) takes about 10 minutes and it photographs the direction of the circumference in the intercylinder part automatically. It is possible to do that the visual data is acquired by all the cylinders at the time of the engine not running. **Kirari NINJA**, it reduces the work labor of the worker, a load in the time. Also, the condition inside the combustion chamber becomes able to be grasped over the details by imaging image and to be analyzed.

< Combustion chamber image >



Cylinder covers touch fire area



Vicinity top dead point



Oil filling hole area



Vicinity bottom dead point

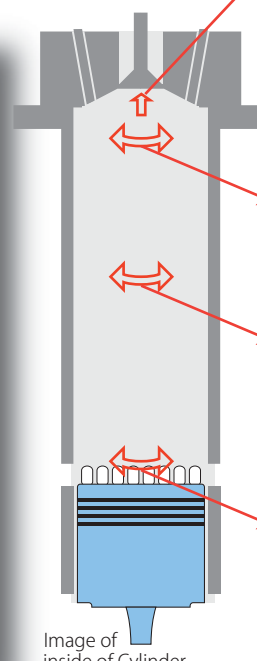
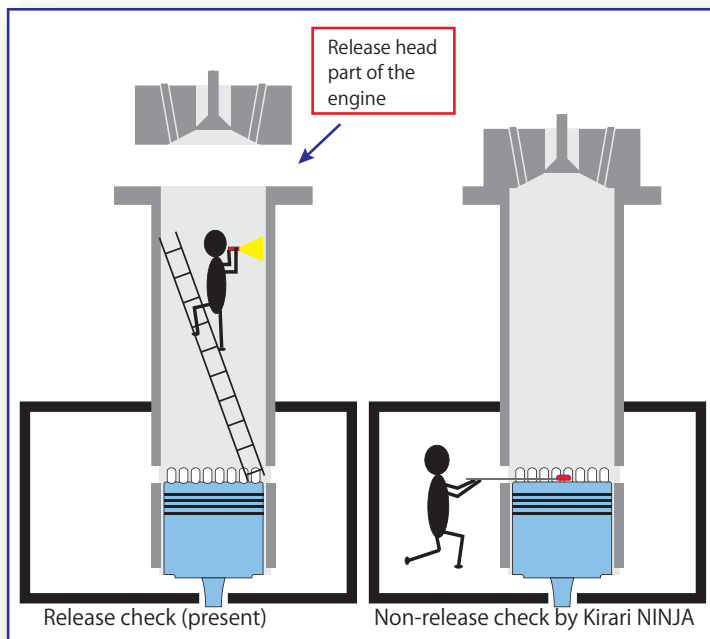


Image of inside of Cylinder

## System Configuration

### Kirari NINJA is name of total system

Model name

DCLC-S01-A Controller ( iPad touch )

DCLC-S01-B Controller ( iPad mini )



• Camera



RICOH THETA S  
360° Panorama Camera

• Controller



iPod touch



iPad mini

• Carrying Case



• Cold insulator



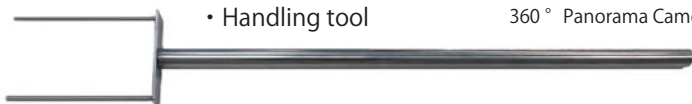
3pcs

• Rechargeable batteries & charger

AAAsize 4 pcs

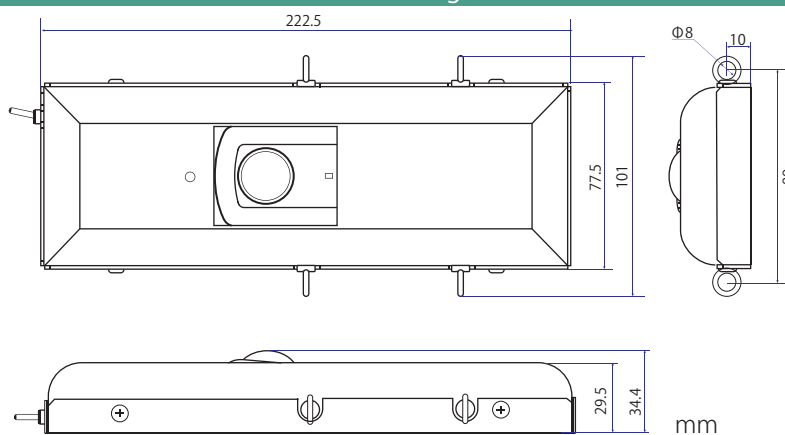
The size of each photograph is not relative ratio percentage.

Also, the equipment photograph is sometimes different from the product.



• Handling tool

### Kirari NINJA main unit exterior drawing



### Parts number & Model Name

Parts number	Model
DCLC-SP-NJ1	Kirari NINJA main unit
DCLC-SP-DB1	Kirari NINJA Dummy box
DCLC-SP-RT1	Camera (RICOH THETA-S)
DCLC-SP-BT1	Rechargeable batteries and the charger
DCLC-SP-CL1	Cold insulator
DCLC-SP-HT1	Handling tool
DCLC-SP-CT1	Controller (iPad touch)
DCLC-SP-CT2	Controller (iPad mini)
DCLC-SP-CC1	Carrying case

### Basic Specifications

The contents of the product are changed without the notice.

The usable condition	Kirari NINJA be stored in the scavenging hole of the cylinder
Heat-resistant	Internal of cylinder temperature is less than 70 °C (10 minutes shoot available with cold isolation)
Illumination range	Cylinder bore diameter max Φ 980 mm
Continuous operating time	90 mins over (exchanging cold insulating at the right time's being deemed conditions)
Shooting mode	Still camera mode
Demension (HxWxD)	35 x 223 x 101 mm ( without switch of lighting )
weight	390 g (include camera, batteries, cold insulating material)
Photograph	Still image Jpeg (Exif Ver.2.3 DCF2.0 compliance)
Internal memory	about 8 GB approx.1600 photos at image size 5376 x 2688 approx. 9000 photos at image size 2048 x 1024
Handling tool	723 mm length width 100 mm (maximum in case of assembling)
Products warranty	90 day ( Japanese domestic only ) details of conditions are shown in the warranty sheet

Kirari NINJA is a system name.  
Kirari NINJA is the joint development product of  
MTI and Daito Electron Co.,Ltd.  
These are trademark or a registered trademark.  
Kirari NINJA : Daito Electron Co.,Ltd  
RICOH THETA S : Ricoh Co. Ltd.  
iPod touch, ipad mini : Apple Inc.  
Wi-Fi : Wi-Fi alliance  
MTI : Monohakobi Technology Institute \*  
\* www.monohakobi.com/ja/company/  
Daitron : Daito Electron Co.,Ltd.

### It has appraised CLASS NK.

It acquired expert evidence SOF  
( Statement of Fact ) about the  
manufacturer's test pass from Class NK.

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### Company Profile

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