

**5-6 Sep. 2005**  
**1st Flex-TEG MT**  
**OICA office, Paris**

# **Preparation Manual for the Flex-G Testing**

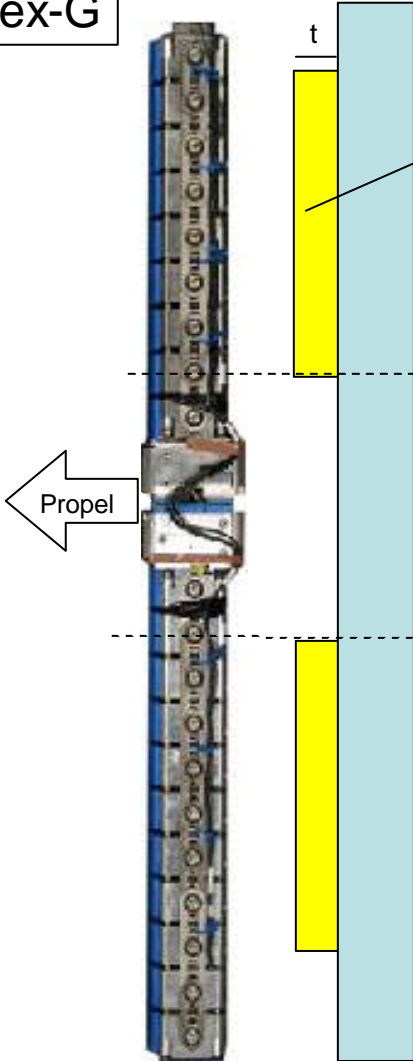
Atsuhiko Konosu  
Japan Automobile Research Institute ( JARI )

**1: for Vehicle Tests**

# Equipment

pushing surface

Flex-G



Size:  $W=60$  mm or over,  $t=20$  mm,  
 $L=300$  mm or over (for leg),  $240$  mm or over (for thigh)  
Surface condition: Flat  
Material: Relatively hard materials are needed.  
(e.g. hard rubber, aluminum, etc).  
\*Please contact to JARI more details.

Attach the spacers at the center of the second bone core segments.

# Equipment

pushing surface (cont.)

for Flex-G

Oblique view

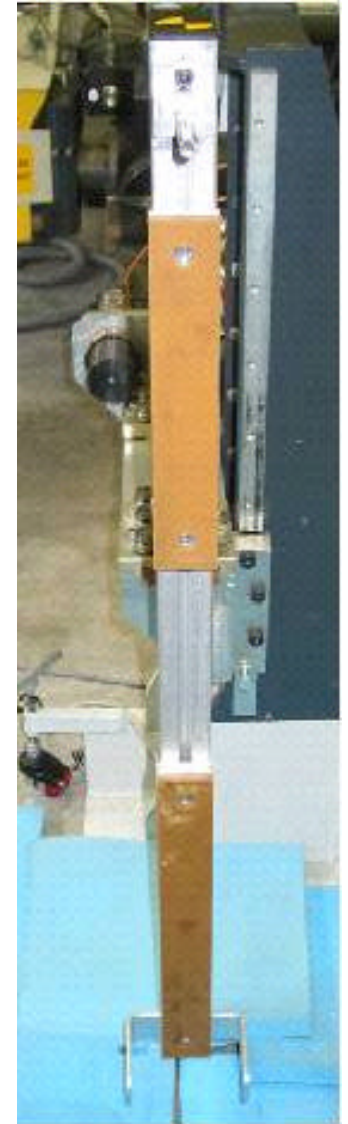


(example at BAST/BGS)

Side view

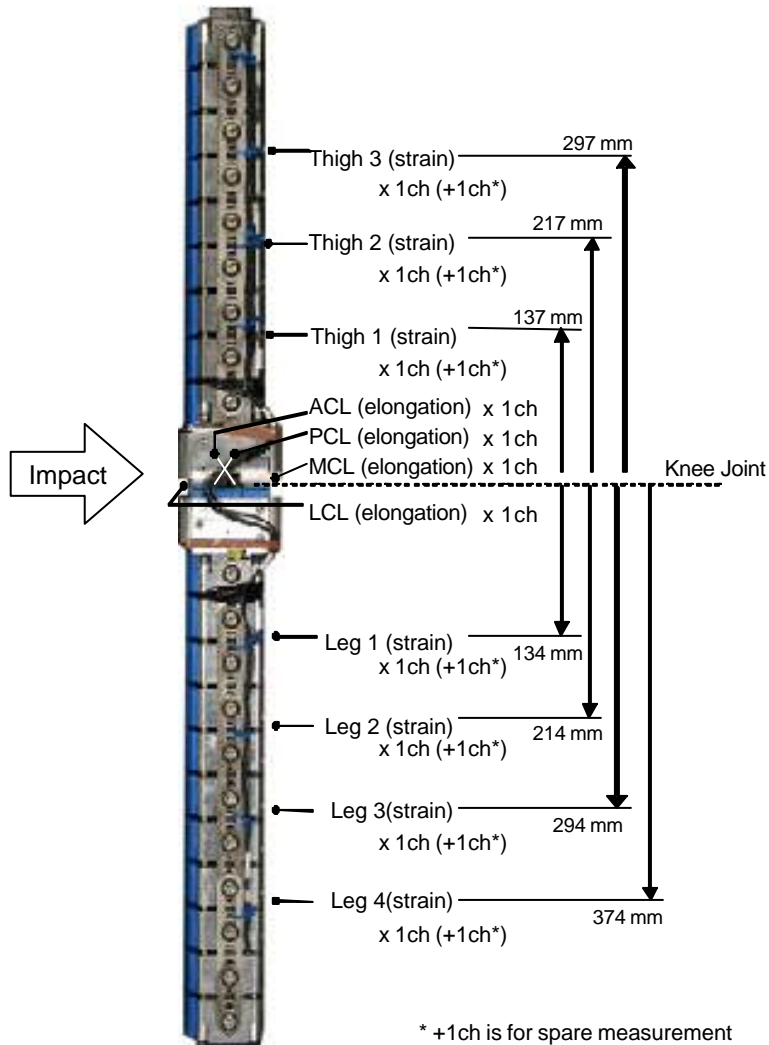


Frontal view



## **2: for Measurements**

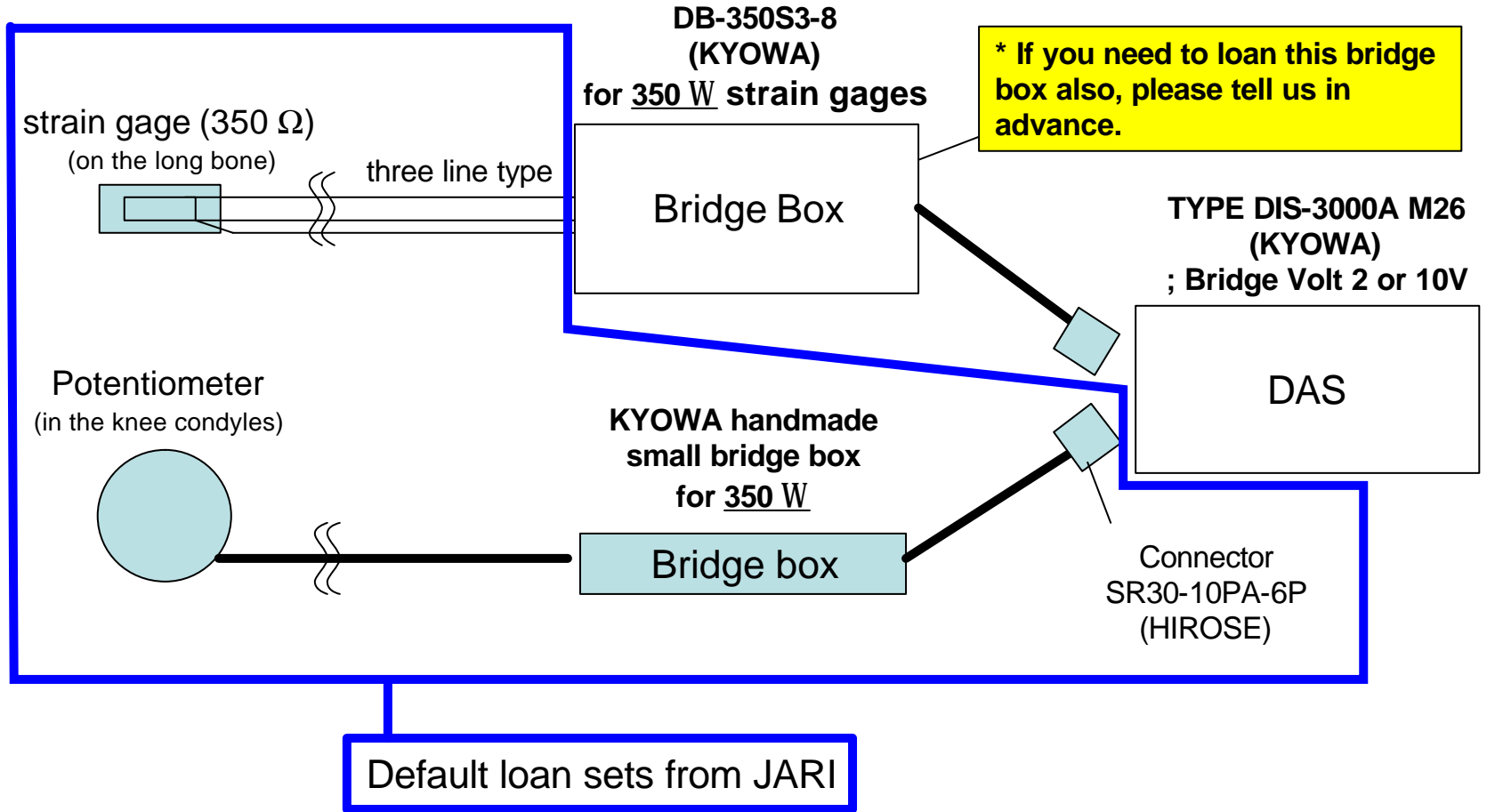
# Flex-G measurement items



standard measurement items: 10 items

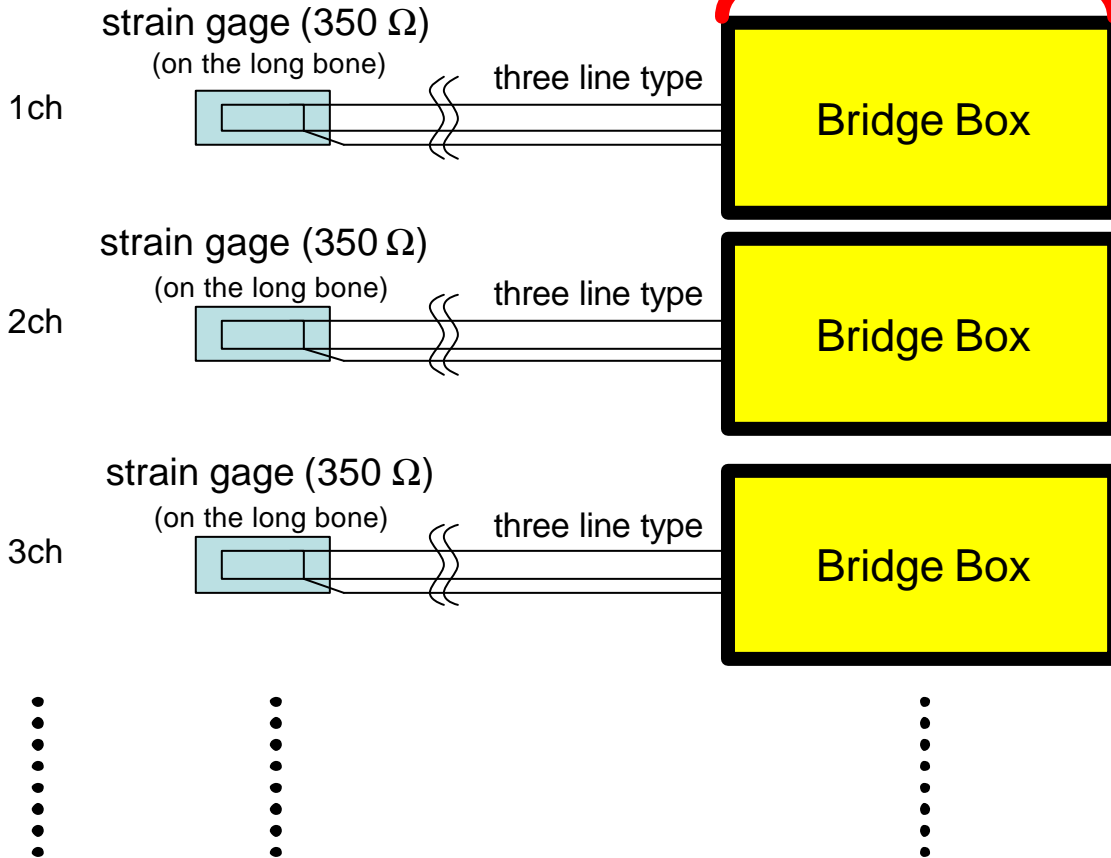
No.	Measurement Parameter	Measurement range
1	Thigh 1a	15,000 $\mu$ strain
2	Thigh 1b (spare)	15,000 $\mu$ strain
3	Thigh 2a	15,000 $\mu$ strain
4	Thigh 2b (spare)	15,000 $\mu$ strain
5	Thigh 3a	15,000 $\mu$ strain
6	Thigh 3b (spare)	15,000 $\mu$ strain
7	Knee ACL	2,000 $\mu$ strain
8	Knee PCL	2,000 $\mu$ strain
9	Knee MCL	2,000 $\mu$ strain
10	Knee LCL	2,000 $\mu$ strain
11	Leg 1a	15,000 $\mu$ strain
12	Leg 1b (spare)	15,000 $\mu$ strain
13	Leg 2a	15,000 $\mu$ strain
14	Leg 2b (spare)	15,000 $\mu$ strain
15	Leg 3a	15,000 $\mu$ strain
16	Leg 3b (spare)	15,000 $\mu$ strain
17	Leg 4a	15,000 $\mu$ strain
18	Leg 4b (spare)	15,000 $\mu$ strain

# Example: JARI measurement system

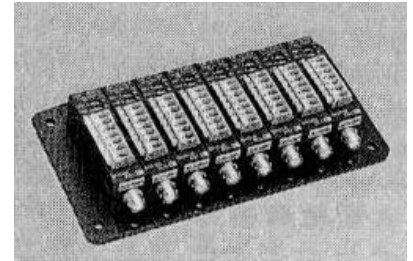


## 2.1) Bridge boxes for the strain gage ( $350\ \Omega$ ) measurements are required

Max (Leg: 4 ch x 2, Thigh: 3 ch x 2)

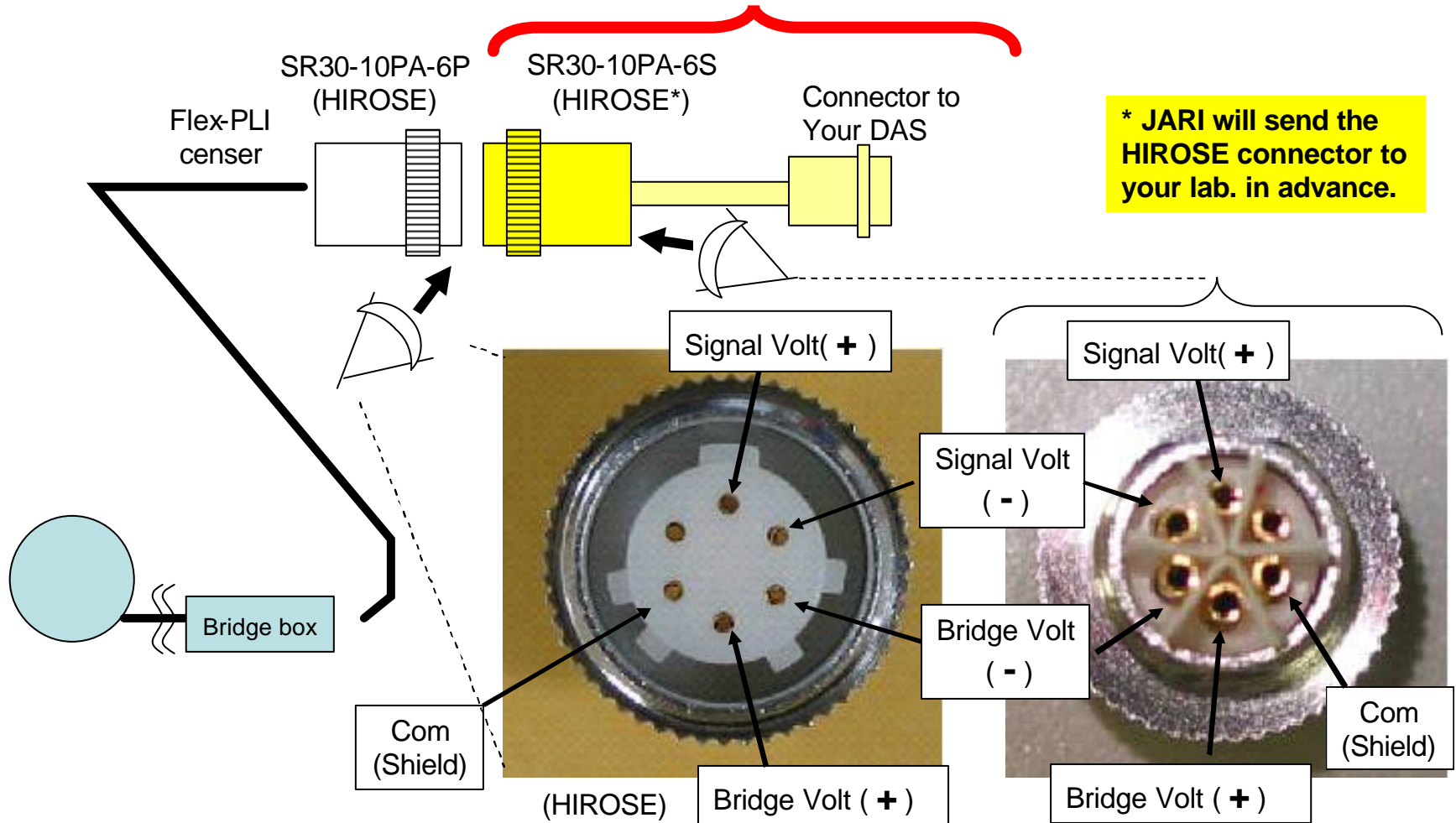


**Example**  
JARI using, DB-250S3-8  
(KYOWA)  
for 350 W strain gage  
(8 ch)





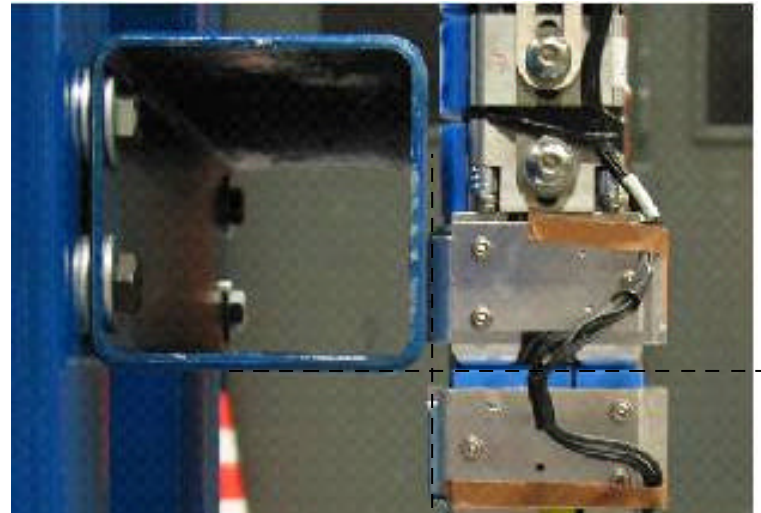
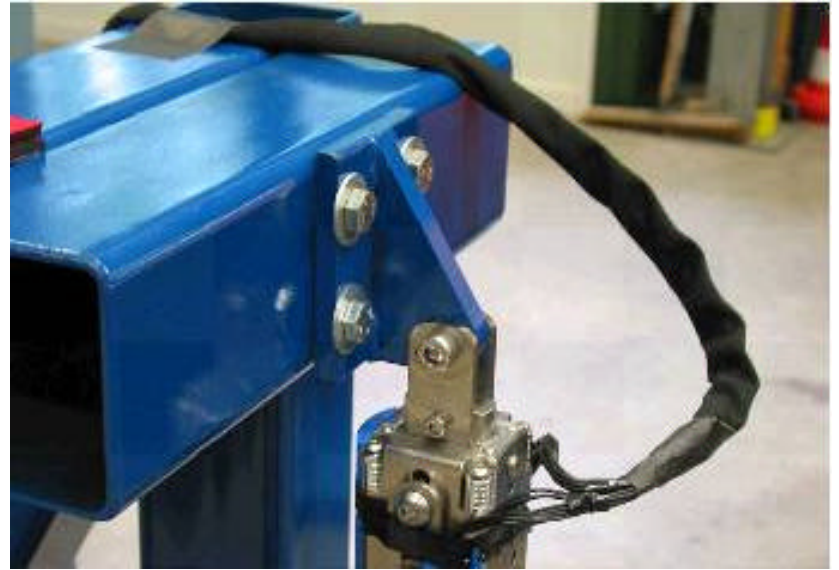
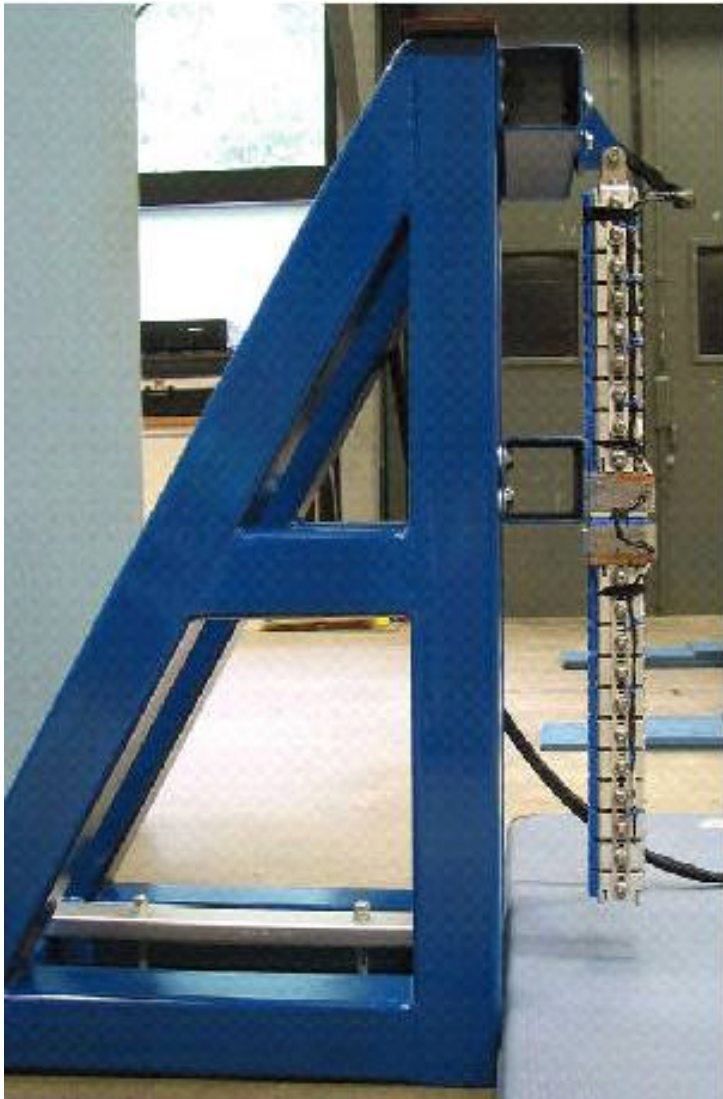
## 2.2) Conversion Cables from JARI Connector to Your DAS connector



- For the knee ligament elongation measurements only (Max: 4 cables are required)
- If you loan the JARI bridge box (8ch) for the strain gage measurements.  
(+ Max: 8 cables are required)

# **3: for Assembly Dynamic Calibration Test**

# Assembly Dynamic Certification Test Rig

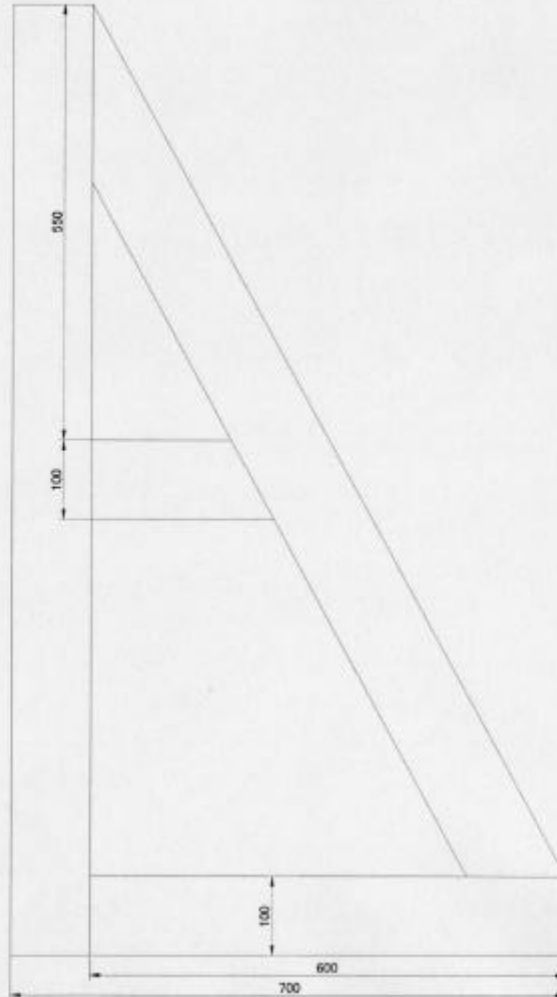


ASSUP\_S1: STEEL (1Set) 100x100x4.5 steel pipe

Frontal View



Side view

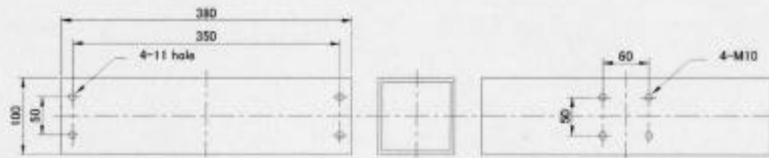


Top view



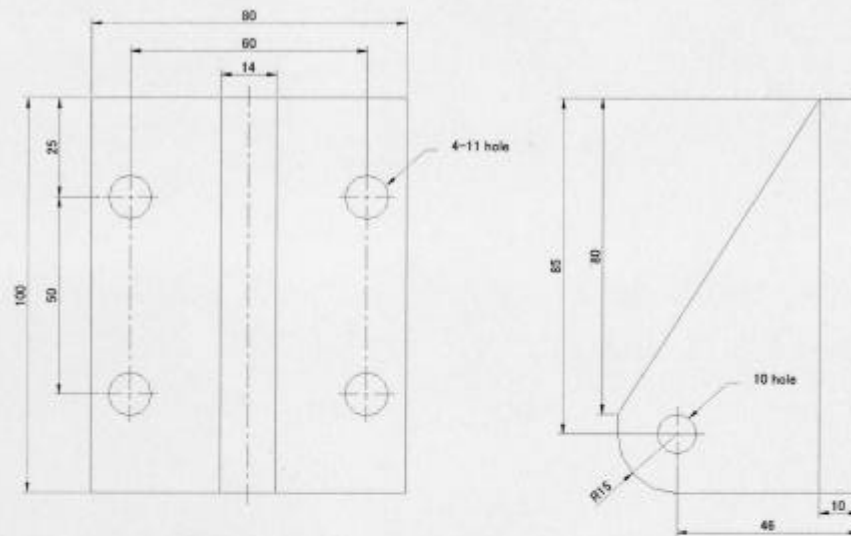
2005/04/07	ASSUP_S1
Atsuhiko Konosu	
JARI	FlexPLI 2004CAL

ASSUP\_S2: STEEL (2 set) 100x100x4.5 steel pipe



2005/04/07	ASSUP_S2
Atsuhiro Konosu	
JARI	FlexPLI 2004CAL

ASSUP\_S3: Steel (1set)



2005/04/07	ASSUP_S3
Atsuhiko Konosu	
JARI	FlexPLI 2004CAL

# CONCLUSIONS

For the Flex-G testing, following preparations are required.

- Pushing Surface
- Conversion Cables from JARI Connector to your DAS Connector
- Bridge boxes (for  $350\Omega$  strain gages)
- Assembly Dynamic Certification Test Rig