

PACKAGING PROCEDURE INTEGRAL FIEL UNIT KCWI

		A	B	C	D
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A	First issue

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1 SUBJECT

This document describes the procedure to use to pack and unpack the “INTEGRAL FIELD UNIT” for KCWI spectrograph.

Important note: Each picture shows a specific action to do. These are just for examples and sometime they have been taken during the tests before packaging.

2 DOCUMENT

KCWI IFU nomenclature: WO4340-010-NOM1
SLICERS INSTALL WO4453-900-PRO003

3 TOOLS AND PRODUCTS

Vinyl scotch tape 50mm, Kapton scotch tape 25mm
Scissors
Set of hexagonal screwdriver CHC M1.5 to M8
Ethyl alcohol
Polyurethane slipcover to envelop the main structure
U nitrogen, Optical cleaner
Gloves, Mask

4 MANUFACTURING TOOLS

Grey room class 100.000

5 MEASURING TOOLS

None

6 ENVIRONMENT

Temperature : $18^{\circ}\text{C} \leq T^{\circ}\text{C} \leq 22\text{C}$
Relative humidity : $30\% \leq \text{Hr} \leq 70\%$

7 PARTICULAR CAUTION

Use gloves and mask to manipulate the slicers. The slicers don't have to be cleaned but they need to be blown.

All the mirrors and slicers are sensitive to the shocks.

All the manipulations and handling have to be done with at least 2 persons

8 OPERATIONS

8.1 UNPACKING

U1

Remove the 4 screws at corners of the crate



U2

Overview of what you see at the beginning of the unpacking procedure



U3

loosen the 2 flight cases from the clamping strap



U4

Remove the 2 flight cases from the wooden crate



U5

Unscrew the 4x2 screws M8 linked the bars to the shock absorbers



U6

Lift the bench using the lifting rings



U7

Transfer the bench on a lifting table



U8
Transfer the bench on a table top



U9
Unscrew the lifting rings



U10
Remove the vinyl scotch tape



U11
Remove the Kapton scotch tape



U12

Remove the 4 M6 screws of the shipping cover



U13

Temporary screw the lifting ring to put the bench at vertical position

U14

Put the bench at vertical

(Take care because at this moment the shipping cover is not linked to the bench)



U15
Loosen and remove the 2 bars



U16
Remove the external slipcover



U17
Remove the internal slipcover



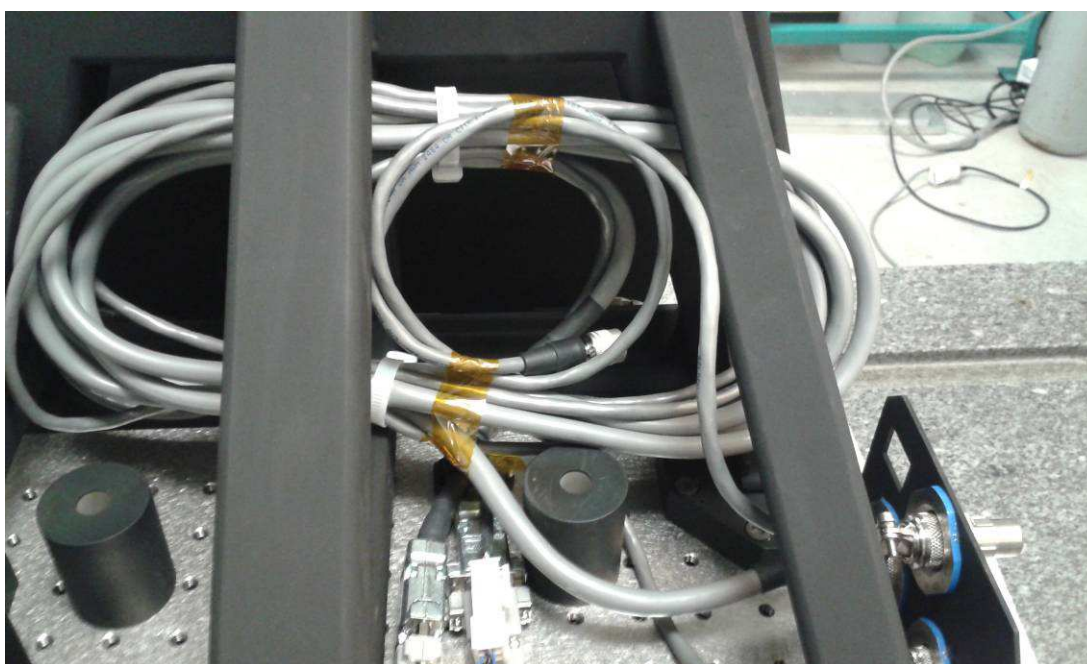
U18
Take away the shipping cover

U19
Put the bench horizontal



U20

Remove the lifting plate from the frame



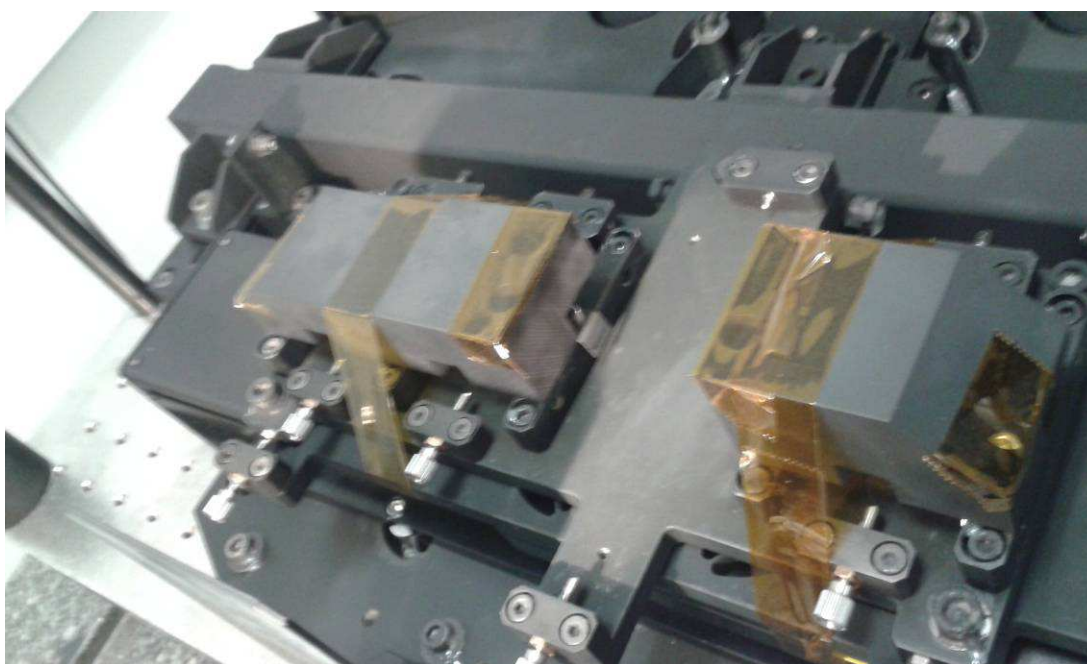
U21

Remove the Kapton scotch tape from the wires



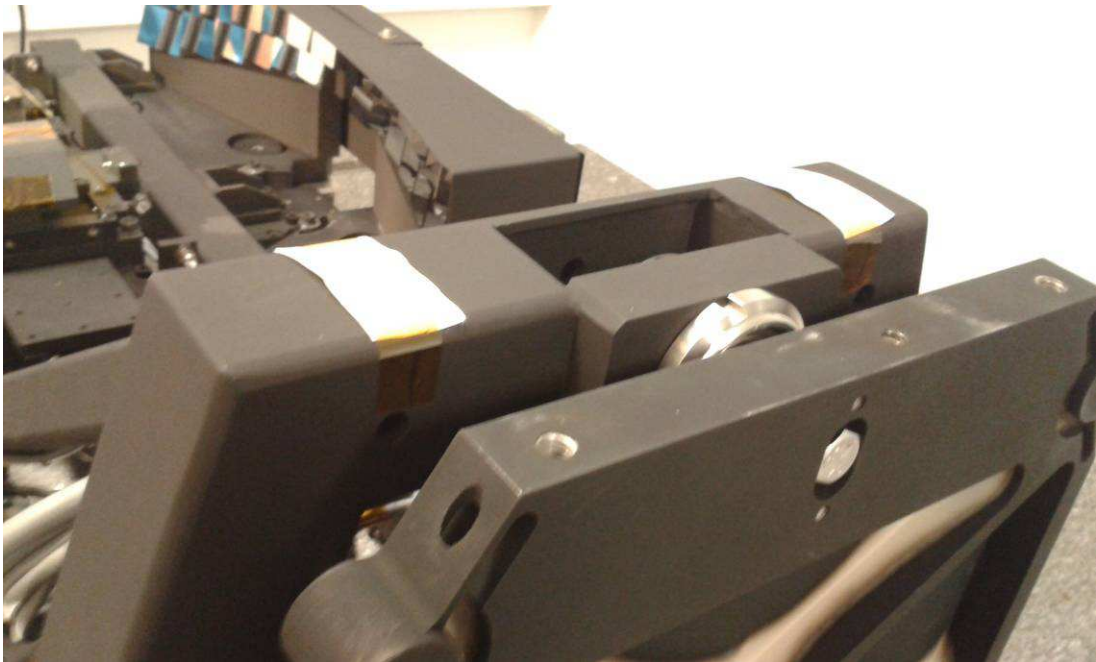
U22

Remove the 2 screws from the columns



U23

Remove the 2 slicer covers from the platform
(keep the covers horizontal to keep the screws at place)



U24

Remove the 2 screws from the frame

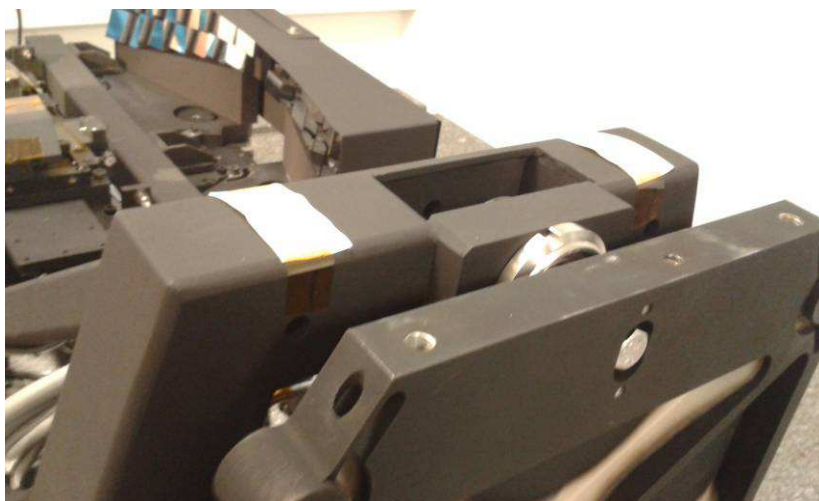
U25

Apply the procedure WO4453-900-PRO003 to install the slicers and the camera on the IFU bench

8.2 PACKING

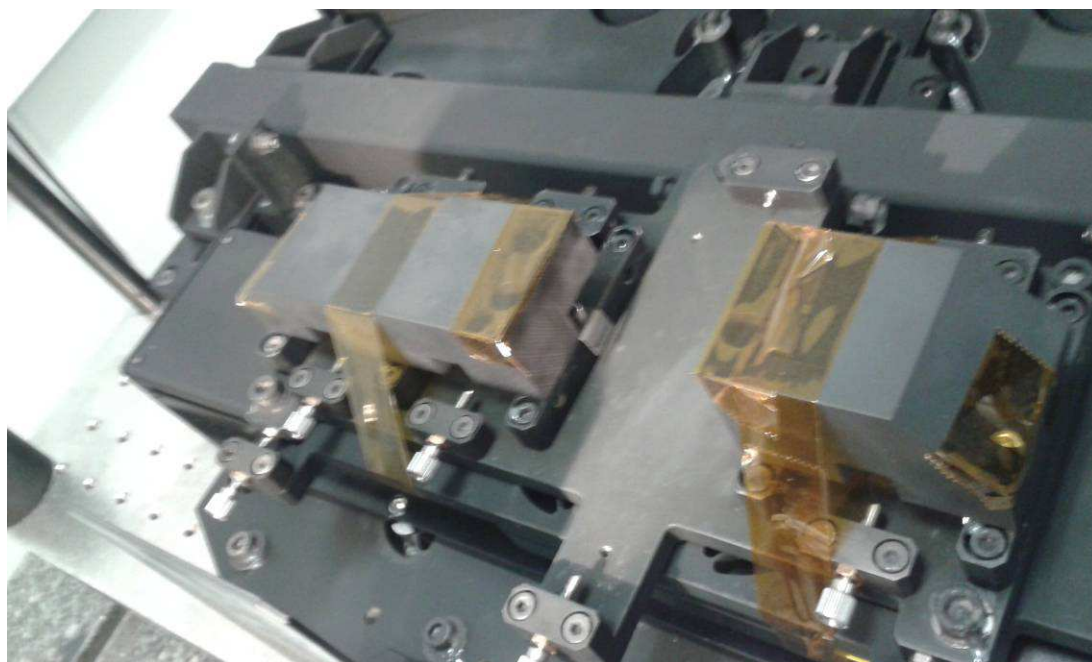
P1

Apply the procedure WO4453-900-PRO003 to remove the slicers and the camera from the IFU bench



P2

Screw the 2 M6 screws in place on the frame and secure its with Kapton tape and optical paper (optical paper is to partially protect the painting on the frame)



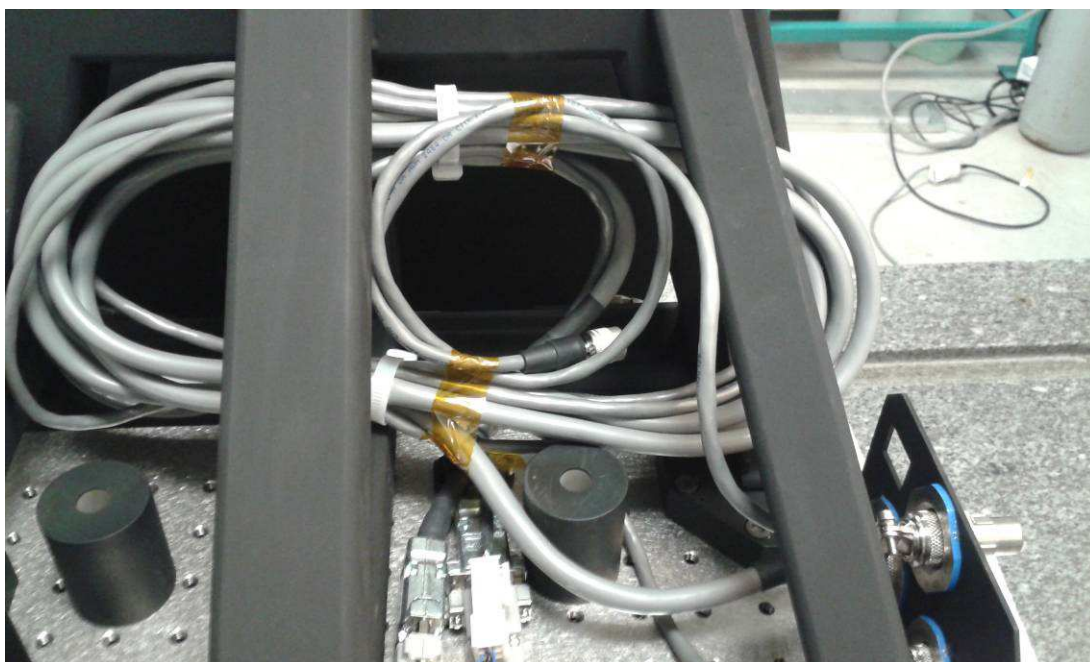
P3

Screw the 2 slicer cover on the platform
Add Kapton scotch tape to secure the these assemblies and to stop-up the crews



P4

Screw the 2 M6 screws in place on the 2 columns and secure its with Kapton tape



P5

Attach the wire together with Kapton scotch tape



P6

Assemble the lifting plate with the frame and secure the screws with Kapton scotch tape



P7

Temporary screw the lifting ring to put the bench at vertical position



P8

When the bench is vertical, place the shipping cover in front of



P9

Envelop the main structure with a polyurethane slipcover



P10

Envelop the main structure with a second polyurethane slipcover



P11

Link the 2 bars to the rear surface of the bench with the M6 screws and secure with Kapton scotch tape
The top bar is screwed on the second line of tapered holes
The bottom bar is screwed on the last line of tapered holes

P12
Put the bench horizontal



P13
Screw the shipping cover with the 4 M6 screws. The screws have to be outside of the 2 slipcovers



P14
Roll the first slipcover and stick it with Kapton scotch tape



P15

Roll the second slipcover and stick it with vinyl scotch tape



P16

Redo the 2 last items on the opposite side



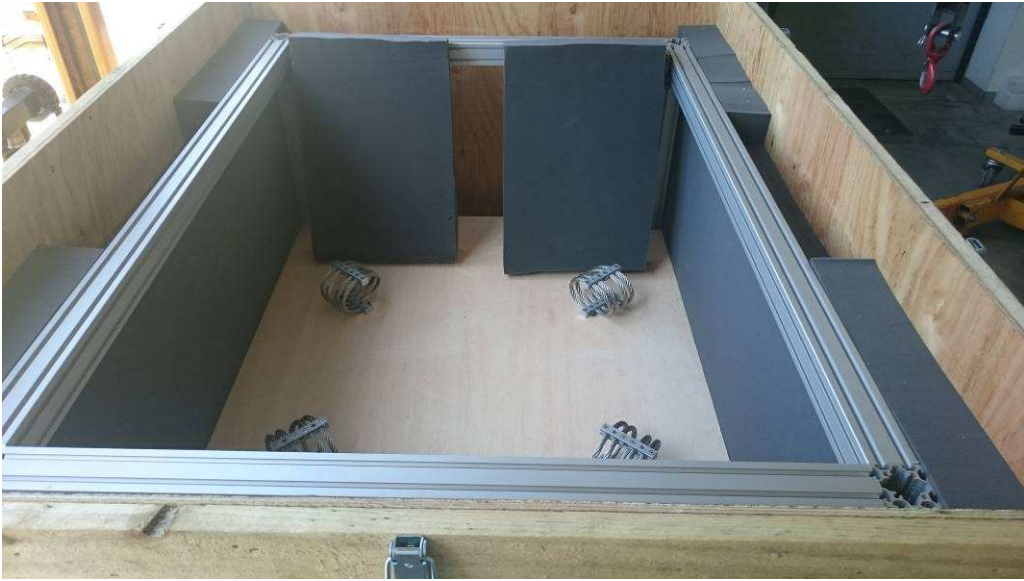
P17

Screw the lifting rings (one on the lifting plate and the two other ones on the side of the base plate)



P18

Transfer the bench on a roller lifting table



P19

Open the wooden crate and check the location of the shock absorber



P20

Lift the bench



P21

Use foam to absorb the potential shock you could have when you move down on the shock absorbers



P22

Screw the 4x2 screws M8 and after use glue to secure the tightening



P23

Put the 2 flight case at the end of the wooden crate (side of the top of the bench)

IMPORTANT NOTE: The slicers have been previously orientate to be horizontal when the flight case is vertical



P24

Tighten the 2 flight cases with a clamping strap



P25

Overview of what you see at the end of the packaging procedure

P26

To make stronger the wooden crate, add wooden screws at corners of the crate

9 QUALITY ASSURANCE

The project will be managed according to ISO9001 standard.

As part of the quality control procedures, if a non conformity arises from any moment during the development of the work, the contractor will immediately communicate it to CALTECH or WINLIGH OPTICS.