

THE ISAAC NEWTON GROUP OF TELESCOPES

INSTRUMENT CHANGE CHECKLIST

INT CASSEGRAIN FOCUS SPECTROGRAPH (IDS) WITH ULTRADAS

(from WFC)



Revision : 1.4

Description : Cass Spectrograph

Location : INT Cassegrain Focus

Weight : N.A.

Preparation

Team required : 1 (Preferably someone from the Detector Group)

Approximate Time : N.A.

IMPORTANT : This work needs to be carried at least **1 day** before the instrument change.

Tick each box when complete.

TICK BOX

1. Make sure that the detector which will be used on the IDS is **pumped down**. This may (or not) be already mounted on the IDS.

2. Once the cryostat has been pumped , **cool it down**. If the cryostat is not mounted on the IDS, it can be taken up to the dome balcony and filled there.

Important Note

When the cryostat is not connected, be sure to check that the anti-static cap is in place. The window will need to be cleaned before it is mounted on the IDS also. See page 7 for more details.

PREPARATION COMPLETE

Signature :

Date :

INSTRUMENT CHANGE PROCEDURE

INT CASS FOCUS SPECTROSCOPY (IDS)

Team required : 1 Electronics specialist
1 Mechanical specialist
1 Weightlifter

Nominal time : 2 hours

PRELIMINARIES

1. Make an entry in the log book : **INSTRUMENT CHANGE - DON'T MOVE THE TELESCOPE**

2. Shutdown the observing systems on the **ICS** (lpss13) and the **DAS** window (to lpss14) and log off.

3. Move the telescope to **ACCESS PARK** and clamp the telescope tube using the floor hook.

4. **AT ACCESS PARK**

- Plug in the Engineering terminal (on the trolley) into the connector on the Prime Focus connector panel labelled **PF ENG CONTROL**.
- Push return and check the 'ok' prompt is present. Terminal must be set to **UPPER CASE** (data format is 9600 7E1)
- Type **HELP** to get the command list.

Enter the following commands terminated with **RETURN**. When a command has been executed, check for a **SUCCESS CODE=N** message (normal). If **ANY** other status message is returned, this will need to be investigated.

- **PLUNGER_OUT** (removes the cardinal point detent pin)
- **CLAMP_OFF** (releases the main clamps)
- **1100 POSITION** (Moves the rotator to 90 degrees)
Re-lock the PFCU rotator with :
- **PLUNGER_IN**
- **CLAMP_ON**
- **?POSITION** (should return a value of 1100 (or very close))

REMOVING THE WFC

The WFC should now be in the correct position for removal with the filter wheel unit facing downwards. Remove the PFCU engineering terminal cable.

5. **IMPORTANT** Before un-cabling, switch **OFF** the :
- The SDSU PSU
 - The AG-CCDC crate
 - The MCA crate
 - The PFCU PSU (in the Clip Centre)

6. Disconnect the WFC mains cable at the top of the telescope prime focus connector panel and **switch off** the **ASL2300 focus unit**. Remove the cover from the spider vane cable tray and remove the following cables:

- The cable harness between the PFCU and the telescope panel.
- The 2 Alpha cables, 3 fibre optics cables and air supply line on the telescope connector panel.
- All the D type connectors, fibre optic cables, mains connector and air supply lines from the blue box on the cable extension arm.

7. Unbolt the WFC cable twister clamp plate (3 screws) then remove the cable extension arm from PFCU and store this on the balcony.

8. Swing out the jib crane and hook on the WFC lifting beam. Attach the beam to the WFC and take up the weight with the crane.

9. Remove the 6 bolts securing the WFC to the PFCU and remove the 2 DOWEL pins.

10. When the WFC is free, lower it down to the observing floor and bolt it back onto it's handling frame. Wheel this into the instrument store room (or the room behind the Clip Centre if work needs to be done on the WFC).

REMOVING THE PRIME FOCUS CONE UNIT (PFCU)

11. Bolt the lifting frame to the PFCU and take up the weight with the crane.

12. Remove the nuts from the 4 mounting studs and carefully extract the PFCU from the central tube. When clear, remove the mounting studs from the tube.

13. Rotate the dome and lower the PFCU into its storage cradle at the far end of the dome balcony. Place the dust cover over it for protection.

FITTING THE SECONDARY MIRROR

14. Attach the crane to the lifting frame on the secondary mirror assembly and raise it clear of the cradle. Rotate the dome and position it over the central tube.

15. Remove the mirror protection cover and slowly manipulate the mirror cell into the central tube.

IMPORTANT :

Lower the mirror cell so that the 2 alignment pins are sitting squarely on their seats and that the mirror cell is flush up against tube.

16. Fit the 6 mounting bolts and check that they are all tight then remove the 5 bolts securing the lifting frame and remove it.

17. Lower the N² liquid nitrogen Dewar down to the observing floor. The crane can now be stowed against the dome.

CABLING UP THE SECONDARY MIRROR CELL

18. Connect up the cable harness below between the secondary mirror cell and the telescope top end ring connector panel, passing it into the spider vane cable tray :

From mirror cell	To telescope connector panel
FOCUS MOTOR	PFC2 (PL10)
FOCUS LIMITS	PFC6 (PL18)
FOCUS LVDT RED	BNC Focus ASL2300 unit (red)
FOCUS LVDT BLUE	BNC Focus ASL2300 unit (blue)
FOCUS LVDT YELLOW	BNC Focus ASL2300 unit (yellow)

19. When this is done, **switch on** the FOCUS ASL2300 UNIT

SONY transducer to be added here when commissioned

20. **MOTORISED COUNTERWEIGHTS**
With the telescope still at access park, plug in the control pendant and move the counterweights so that the top of the weight tray is level with the top of the cube. *n.b.* The weights can be either moved individually or as a pair.

21. Drive the telescope back to zenith park.

The top end work is now completed

BOTTOM END WORK

MOUNTING THE CCD CRYOSTAT (if need be)

ELECTROSTATIC WARNING

It is essential to use an wrist strap when cabling up the cryostat as the pins to the chip will be exposed when the anti-static cap is removed.

It is best that a member from the Detector Group does this job.

22. **Clean the cryostat window**

Before the cryostat is mounted, clean the window using dry air to blow off any dust particles. If the window is still dirty, use Balzers fluid with a lint free tissue to clean it.

23. **IN THE CLIP CENTRE**

- In bay 9, check that a fibre optic cable is connected between a FOX card (autoguider FOX crate) and the fibre optic distribution tray connector labelled CASS - 2

- **IMPORTANT** Until further notice:

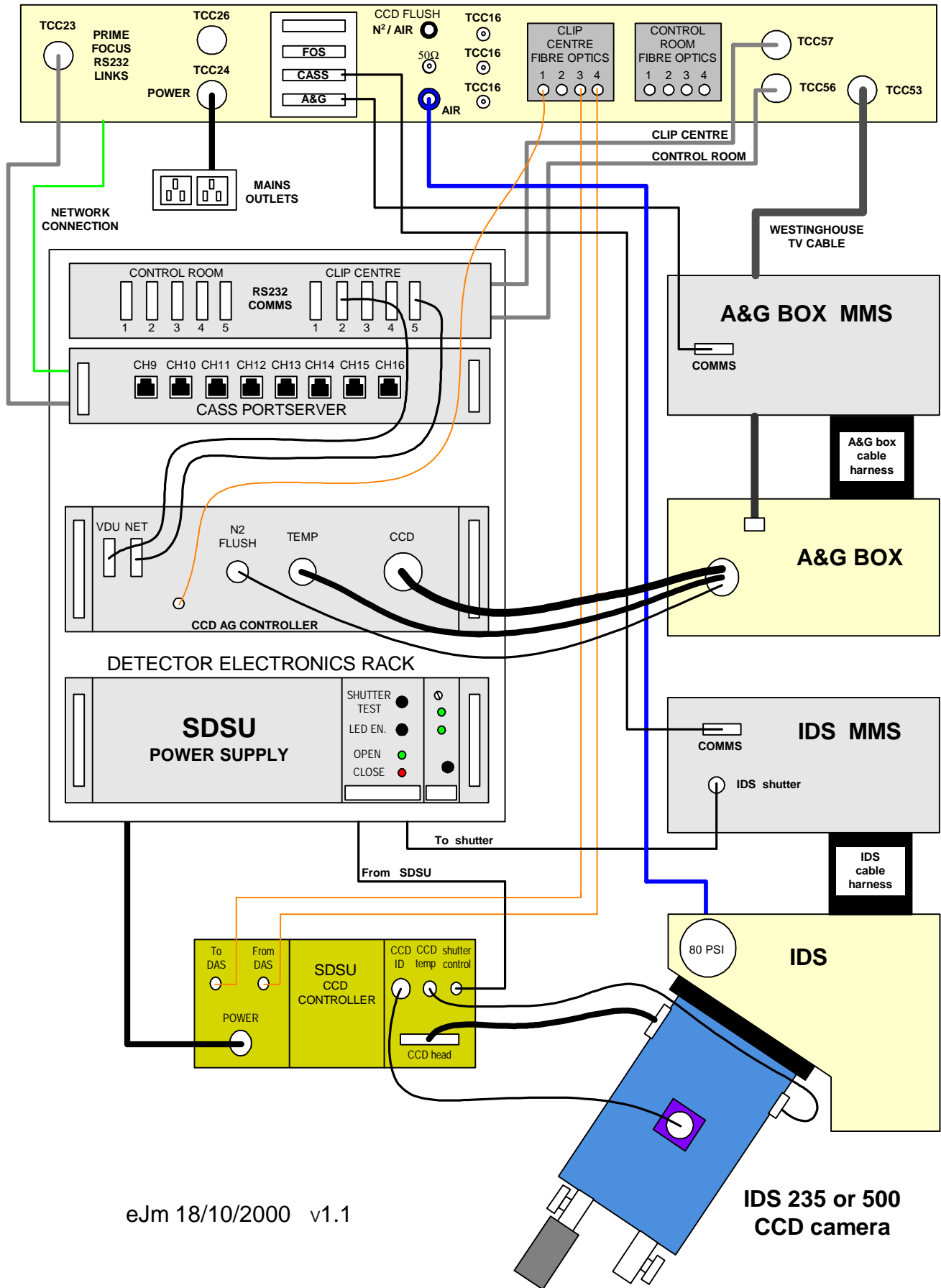
Change over the 2 CCD fibres marked To and FROM DAS from the PRIME connectors 3-4 to the CASS group 5-6 on the fibre optic distribution tray in Bay 9. The connectors are labelled accordingly.

24. After doing a cabling check, switch on the SDSU PSU and shutter control PSU.

Note

It is normal practice to leave the Cass A&G box and the IDS **switched on** when working at prime focus. If there are problems, the drawing on page 8 shows all the connections that should be in place when working at the Cassegrain focus using IDS and UltraDAS.

INT CASS A&G BOX, IDS and CCD with UltraDAS / SDSU interconnections



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25. The telescope can now be checked for fine **BALANCE**.

n.b. Now that the mirror cell weights are no longer changed, provided the motorised counterweights are returned to the CASS position, the balance should not have changed.

26. **FINALLY :**

Check out the IDS using the IDS DE-Check list in the red book in the control room. The version on the WEB is always the most recent. If the paper copy is an older version, the latest version can be found at:

http://www.ing.iac.es/~eng/ops/int/ids_checks.html

INSTRUMENT CHANGED COMPLETED

CHANGE COMPLETE

Signature :

Date :

HAND-OVER TO SUPPORT ASTRONOMER

SET-UP COMPLETE

Signature :

Date :