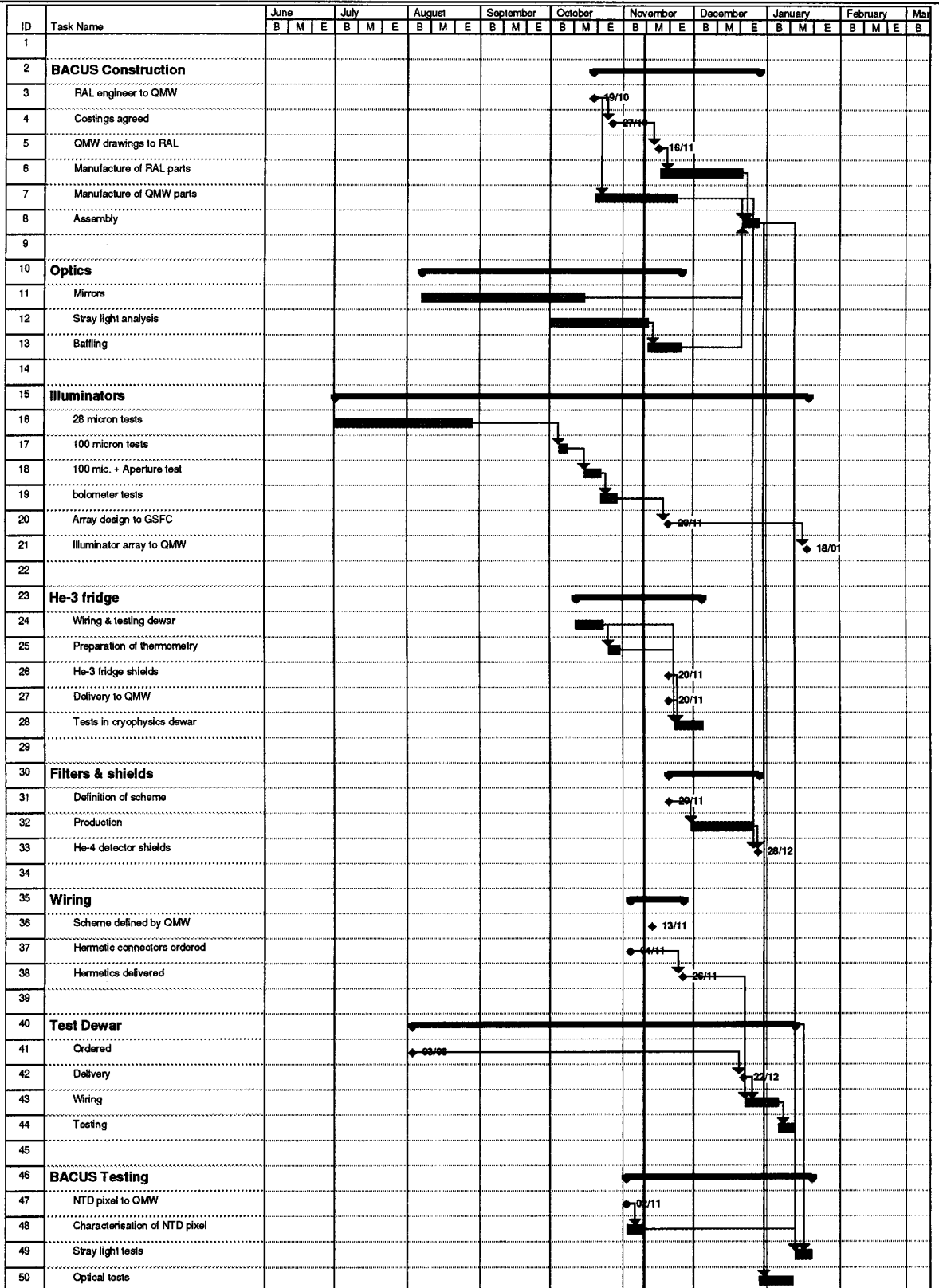


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## Current BACUS Status

- Optics
  - Mirrors arrived late October
  - Stray light analysis being carried out by RAL – will also model baffling.
- Illuminators
  - Tested with bolometer at 350  $\mu\text{m}$  – seem to give negligible output at this wavelength.
  - Working with Dave Robinson to redesign the illuminators for optimisation at 350  $\mu\text{m}$ .
  - Array of 13 illuminators needed for each BACUS module – designing array with Dave Robinson (GSFC). Hope to have working array by end December.
  - Following a suggestion by Louis, we are going to try using InSb as a reverse HEB illumination source.
- He-3 fridge
  - Expected Mid November.
- Thermometry
  - We have a Lakeshore Cryogenics calibrated thermometer in the lab. We will use this for testing all 3 fridges before shipment to the US. (GSFC delivery end November, JPL delivery early January).
  - Additional National Instruments SCXI chassis/module needed. Order being processed now.
- He-3 fridge shields
  - Bases and tops completed. Rest of shields completed inc. plating by mid-November.
  - Design of strap needs to be finalised. Need to consult with US array groups re. Their 300mK detector shield design.
- He-4 detector shields
  - To be manufactured by RAL, but need to know design of US 300mK detector shields before final drawings can be sent to RAL. This information is needed as soon as possible (at least the clearance above the focal plane and preferred position of cold strap), and the array groups are working on this.
- General structure (support tubes etc)
  - RAL will supply engineering effort –JPL/GSFC will purchase complete, tested BACUS modules. RAL will build structural components for all 3 BACUS modules, which will then be sent to QMW for assembly & testing before shipment to the US. RAL engineer visited QMW in mid October and has put together a cost/delivery estimate. He will oversee work at RAL. Mirrors for the 2 additional BACUS modules will be ordered by (TBD) from Symons Mirror Technology – lead time approx. 5 weeks.
- Filters
  - Scheme needs definition, and then QMW to build filter stacks.



- Connectors
  - Supplier – Ultratech (France). They are supplying all three connector types (79-pin, 32-pin & 26-pin) with no minimum order quantity, and from stock. Delivery has been quoted as 2 weeks from receipt of order. The order for connectors for all three dewars has been placed by GSFC, but is still caught up in US administration. There will be one spare connector of each type, although JPL has bagged the spare 79-pin connector.
- Wiring scheme
  - Document to be released from QMW by 13<sup>th</sup> November. This will define the housekeeping and illuminator wiring scheme (detector array, housekeeping and illuminators on separate cryostat connectors).
- Cryostat
  - Expecting delivery of dewar mid-December.
  - Dick Gummer at Precision Cryogenics has been sent drawings of connectors, together with mounting instructions.

## Testing Status

- QMW
  - Cryophysics dewar has been wired and tested in preparation for He-3 fridge tests, and then subsequent use for testing the CEA prototype array and the JPL TES pixel.
  - He-3 fridge delivery to QMW early November.
  - He-3 shields completed by mid-November.
- CEA
  - QMW are to visit CEA group to determine mechanical/electrical/thermal interfaces mid November. Dates for visit to be confirmed with Louis.
  - CEA have delivered an array to QMW for optical tests (single pixel activated). Test plan for this device is being formulated.
- JPL
  - No change since last report
- GSFC
  - No change since last report

## Schedule

The attached schedule has only slight amendments since the last report, but is included for reference.