

SERVICES UPDATE

**FEBRUARY, 1999**

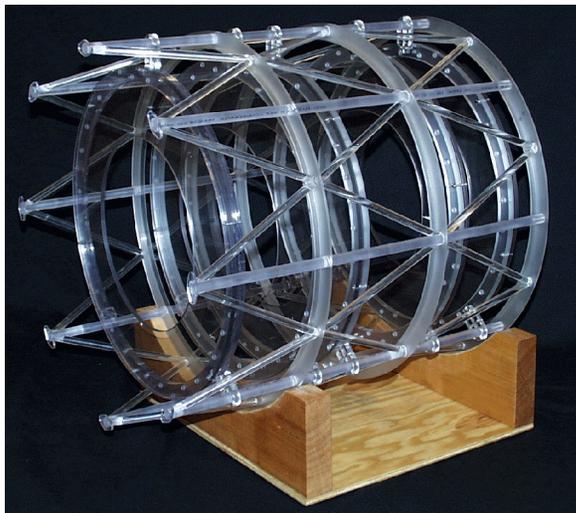
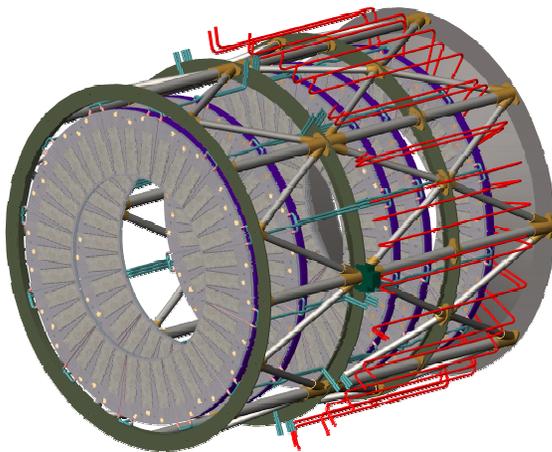
**MECHANICS**

**E. ANDERSSSEN, LBNL/CERN**

## SERVICES

- FOLLOW-UP ON ISSUES POINTED OUT LAST TIME
- PROTOTYPING STATUS
- EXTERNAL ISSUES

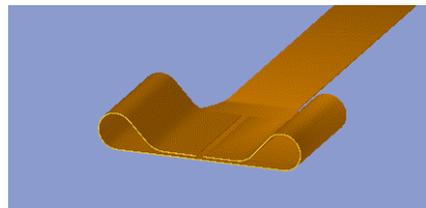
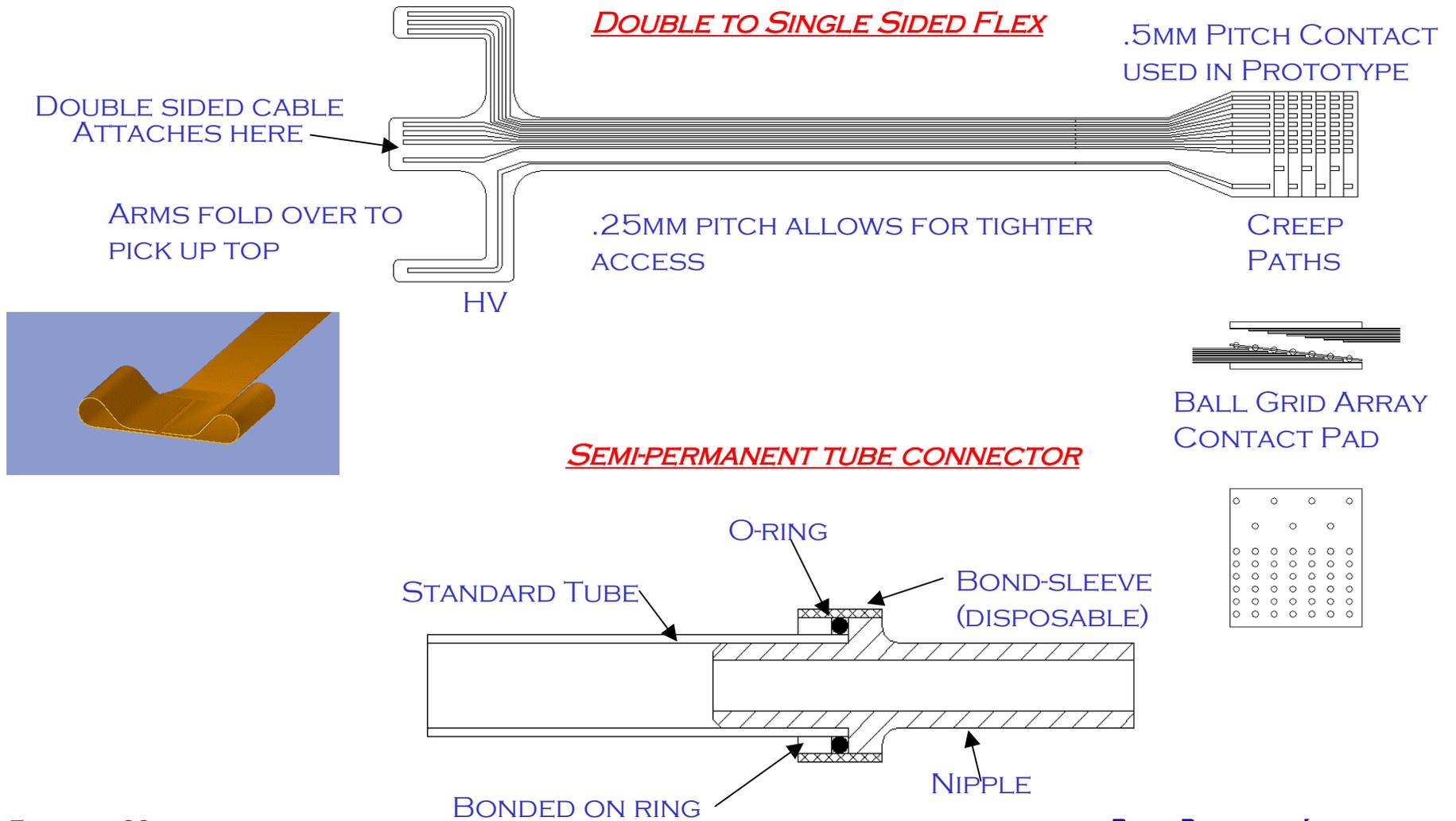
## REMAINING ISSUES



- **PATCH PANELS (!)**
  - PROTOTYPE OF 1/4 TRACKER UNDERWAY IN INDIANA AND UC LONDON
    - <1/4 PIXEL MODEL ON WAY TO RAL FOR PPB1 MOCKUP>
- **ROUTING NEEDS TO BE RE-DONE IN 3-D**
  - CABLE BEHAVIOUR HARD TO CAPTURE IN CAD
  - 3D NON STRUCTURAL SCALE MODEL HAS BEEN CONSTRUCTED
    - PIXEL FLAT PANEL MODEL REPLACING TRUSS MODEL
  - ROUTE SERVICES ON MODEL, FEEDBACK INTO 3-D CAD
- **FORCES NEED TO BE ESTIMATED**
  - COOLING TUBES WILL RESPOND TO PRESSURE AND TEMPERATURE VARIATIONS-NEED TO ESTIMATE LOADS
    - INCLUSION OF BELLOWS BEING INVESTIGATED BETWEEN SERVICE SUPPORT PLATE AND PIXEL DETECTOR
- **COUPLINGS AND STRAIN RELIEF NEED TO BE INVESTIGATED**
  - ASSEMBLY AND SUBSEQUENT ATTACHMENT OF SERVICES WILL COUPLE THE PIXEL DETECTOR TO EXTERNAL DETECTORS.
    - ASSEMBLY SEQUENCE BEING DEVELOPED FOR INTERFACE DOC.
  - FLEXIBLE CONNECTIONS NEED TO BE RAD-HARD
    - CURRENTLY ONLY BELLOWS WORK
    - NICKEL/CUPRO-NICKEL/SS (MAGNETIC PERMEABILITY?)
- **CONNECTIONS NEED TO BE PROTOTYPED**
  - ALUMINUM CABLING IS NOT EASILY CONNECTED TO
    - REQ: NICKEL/GOLD CAN BE SOLDERED
  - COMMERCIAL CONNECTORS ARE NOT DESIRABLE
    - SOME HAVE BEEN SELECTED FOR DISK PIGTAIL, END OF STAVE STILL PROBLEM

# PIXEL DETECTOR

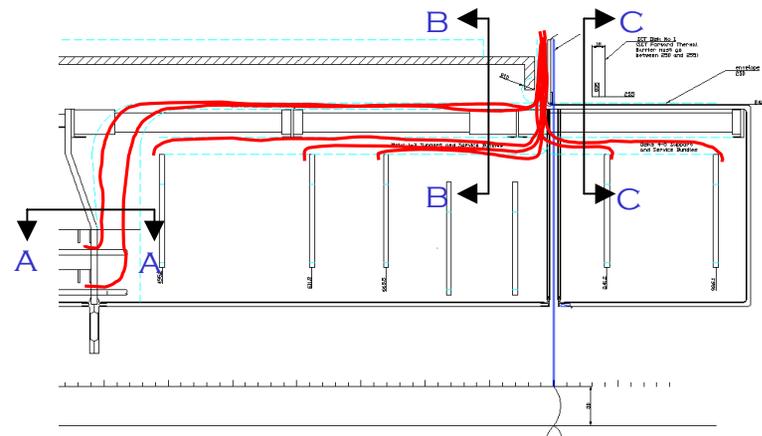
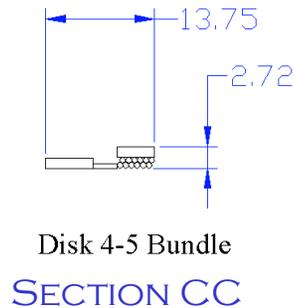
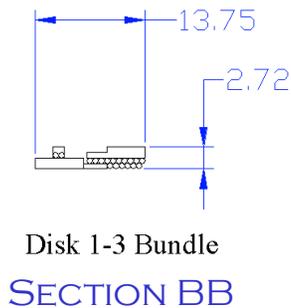
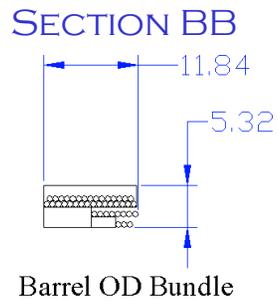
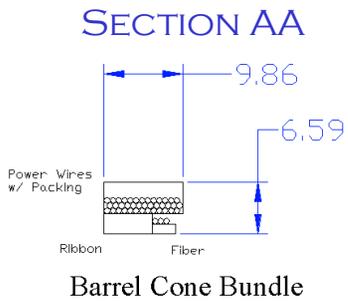
## CONNECTIONS/BREAKS



# PIXEL DETECTOR

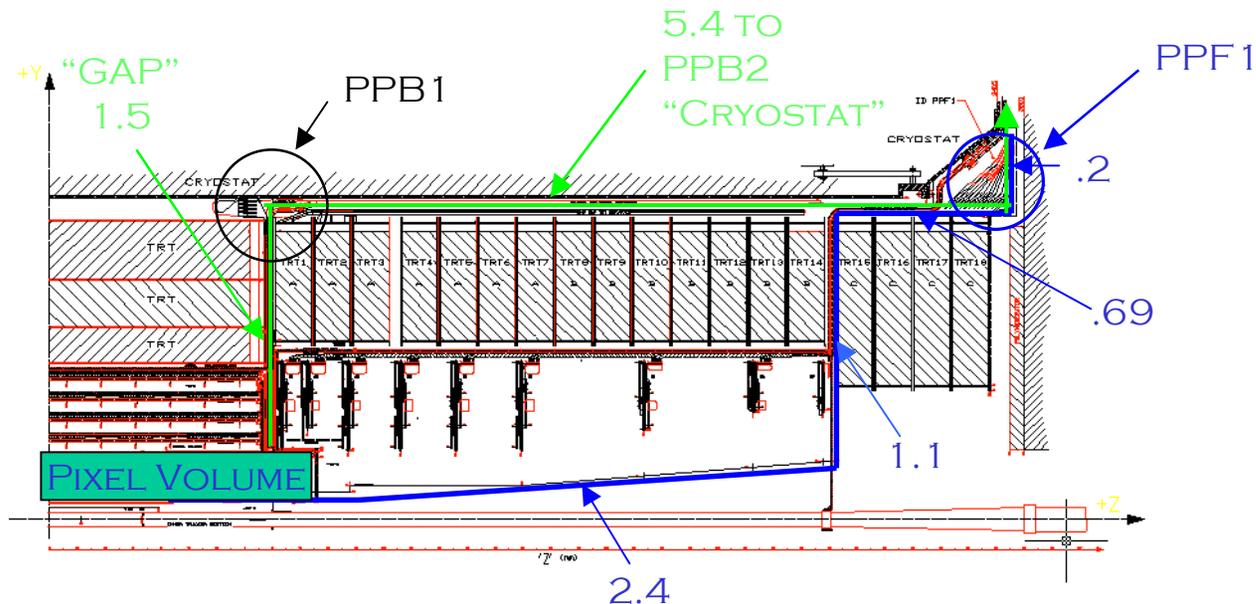
## CABLE BUNDLES AS DEFINED IN PIXEL VOLUME

- **BUNDLES DO NOT ACCOUNT FOR PHI REGROUPING**
  - BUNDLES WILL NEED TO BE INTEGRATED AND BUNCHED IN GAP REGION INTO 8 ANGULAR REGIONS FOR EXTERNAL ROUTING
- **BARREL SERVICES ARE ROUTED ON THE OUTSIDE OF THE FORWARD FRAME**
  - BARREL BUNDLES HAVE SERVICES FOR 7 MODULES
- **DISK SERVICES ARE ROUTED INSIDE OF FORWARD FRAME**
  - DISK 1-3 BUNDLE SERVES 3 MODULES ON CONSECUTIVE DISKS
  - DISK 4-5 BUNDLE SIMILARLY SERVES 2 MODULES



# PIXEL DETECTOR

## A BRIEF LOOK AT EXTERNAL ROUTING



B-LAYER ROUTING IS SHOWN IN BLUE, THE REST OF THE PIXEL SERVICES ARE ROUTED ALONG THE GREEN PATH.

- POWER CABLES CHANGE SIZE AT PPB1 AND PPF 1 FROM “TYPE 1” TO “TYPE 2”
  - TYPE 1 IS SIZED FOR THE 1.5M RUN FROM INSIDE PIXEL VOLUME TO PPB1 THROUGH “GAP”.
  - TYPE 2 IS SIZED BASED ON ONLY 2.7M OF THE 5.4M RUN FROM PPB1 TO PPB2 ALONG “CRYOSTAT”.
  - THESE REGIONS WERE DEEMED MOST CRITICAL FOR BOTH SPACE AND DISSIPATION REASONS
- POWER CABLES WERE SIZED BASED ON ACCEPTABLE VOLTAGE DROPS FOR THE GIVEN LENGTHS  
 B-LAYER CABLES ARE TYPE 1 CABLES OUT TO PPF 1