

Installation & Commissioning

same basic idea as CTB

TOF trays are significantly heavier than CTB though
too heavy for two people

need rail holder on the scissor lift or
rail holder on spreader bar, hanging from hook

slide-in both trays at specific phi-position from East side

all on tray cabling must be installed beforehand, and “short”

LV bus

Canbus

Data cables

Water in/out

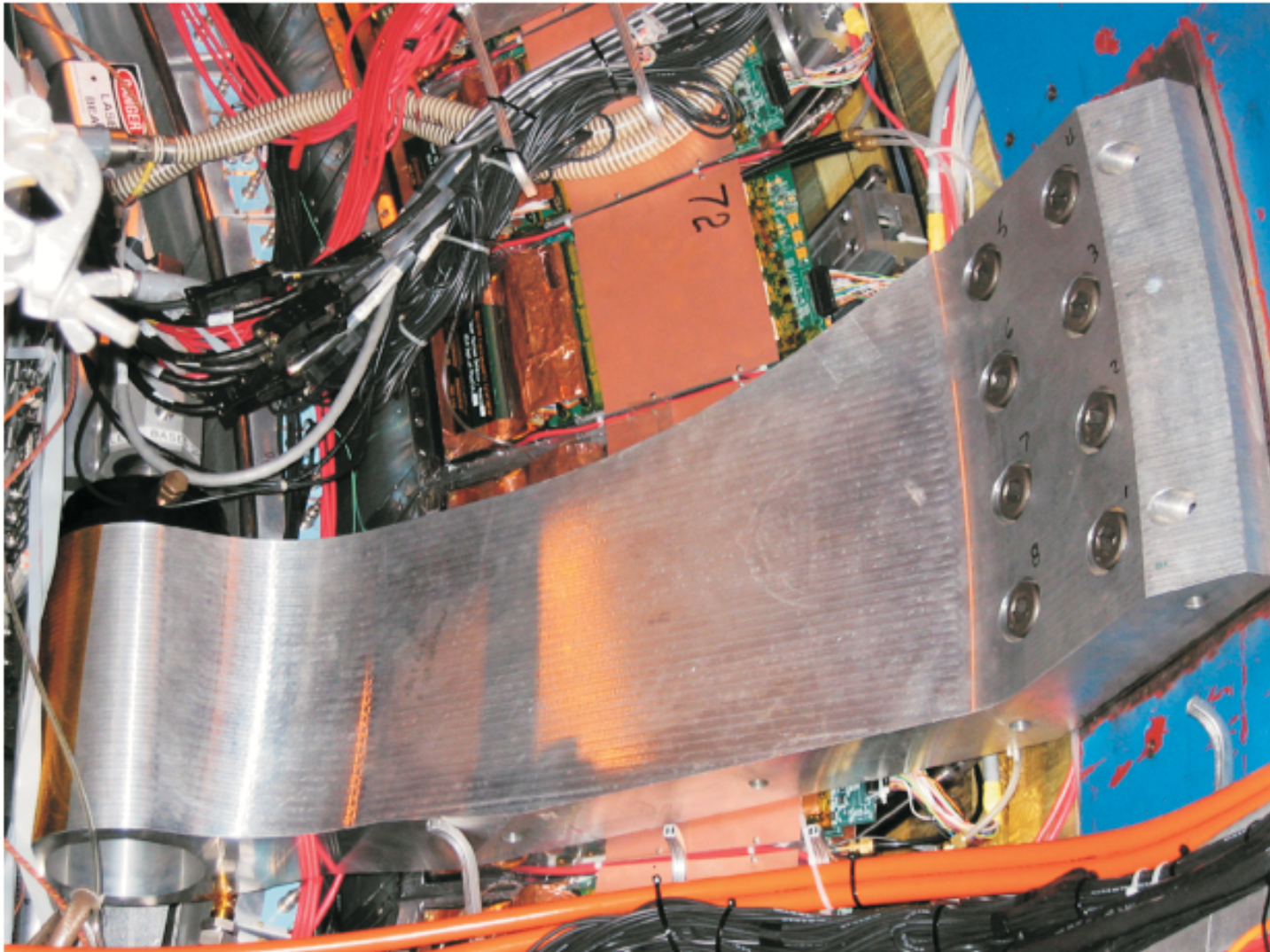
HV (2) and Gas in/out attached after tray installed

need special fixture to support TPC for trays behind support arms

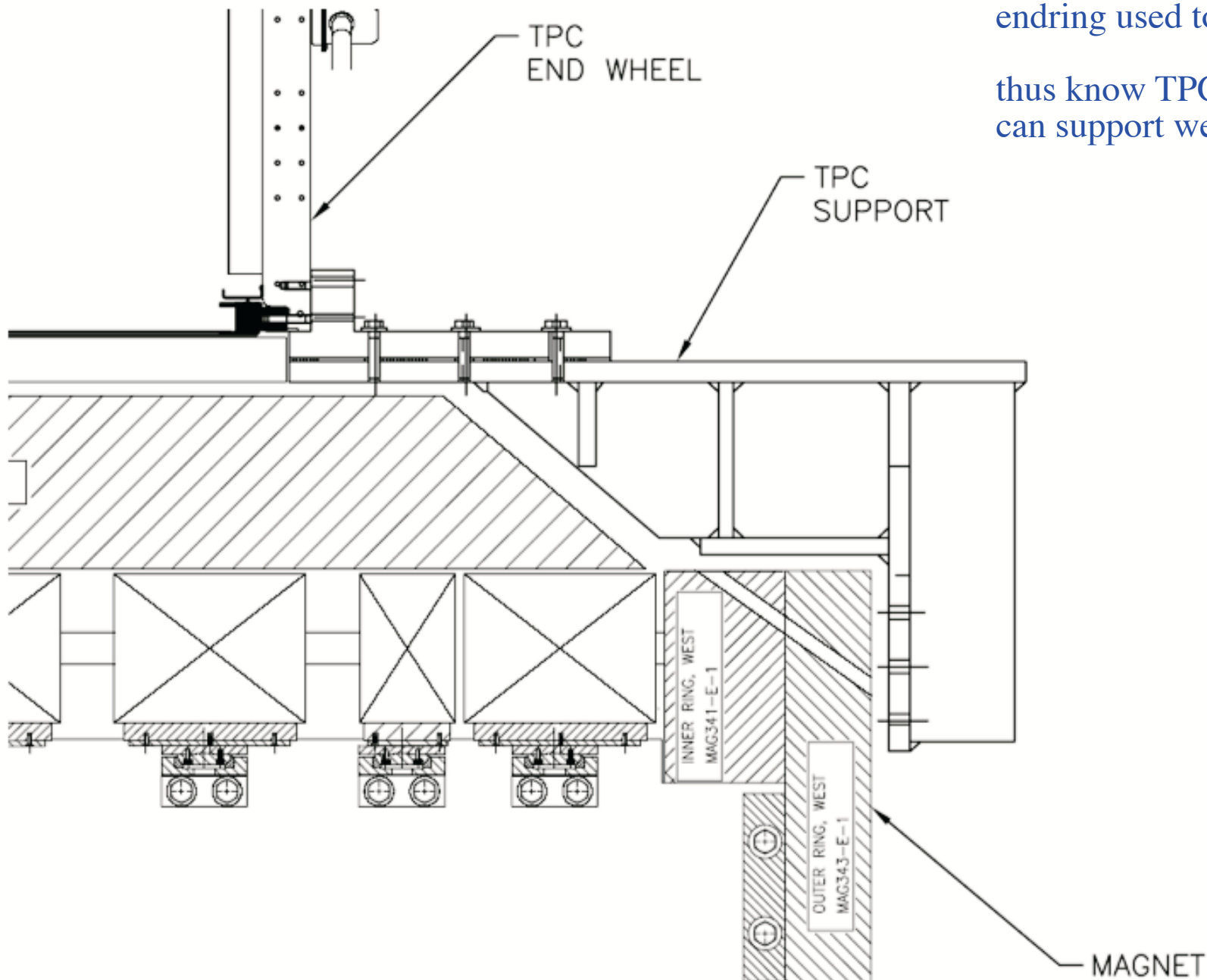
Installing TOF Trays behind TPC Support Arms

Requires support of TPC at 6 o'clock

Removal of TPC east support arms



TPC 6 o'clock Support Concept



During BEMC installation, hydraulic jack on TPC support endring used to support TPC.

thus know TPC support endrings can support weight of TPC.

Pre-installation Testing

done onsite after trays shipped to BNL

requires

Freon-only gas system

HV

spare TCPU and one LV supply

laptop with pcan dongle

simple water flow system would be very helpful

~100 sq.ft. of floor space somewhere close to WAH

Test Suite:

HV stability

must hold +/-7125 V for >24 hours

HV currents

must be <40 nA/side after HV on for 24 hours

LV currents

must be to final specification w/in ~0.5A

R/O

all 8 TDIG boards must respond to pcanloop/pc commands over actual data path cabling

Noise rates

must be <40 Hz in all channels

Dead channels

must be <6/tray

Leak Test

must hold initial pressure for 6 hours

Post-installation Testing

done after trays are on rails and fully cabled up.

requires

actual gas system (freon-only)
HV via CAENs
TCPU connection to THUB
STAR water system

Test Suite:

HV stability

must still hold +/-7125 V for >24 hours

HV currents

must still be <40 nA/side after HV on for 24 hours

LV currents

must still be to final specification w/in ~0.5A

R/O

all 8 TDIG boards must respond to pcanloop/pc commands over actual data path cabling

Noise rates

must still be <40 Hz in all channels

Dead channels

must still be <6/tray

Installation Manpower

Tray pre-install testing: Collaboration

Tray mechanical installation: STSG Techs

Tray post-install work:

water system: STSG Techs

data cables: TOF Group

LV cables: TOF Group & STSG

HV cables: TOF Group & STSG

action item: identify space for tray testing and storage during runs

Installation Schedule

we install however many trays we have available in each long shutdown

tray arrival at BNL and successful pre-installation testing meets deliverable requirement

TOF participates in annual Shutdown Planning exercise

we quote # trays to be installed

estimates of time and manpower required