

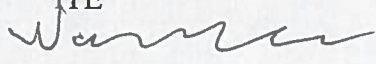
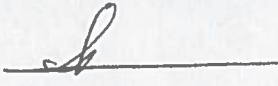
6 Module Connection Checklist

SEQ	ITEM	NOTE	CHECK
Safety	Acknowledge and Activate Work Permit	Call ISAC operators (x7500) Call Main Control Room if disconnecting or closing water supply/return in SEQ 0 (x 7333) or if supplied airhood is necessary	✓
Safety	Hold Pre-Job Briefing	<ul style="list-style-type: none"> • Discuss hazards, safety protocols and work steps listed in this document and checklists. • All workers on the work permit shall be present. If there are concerns about the job, discuss with supervisors and re-plan if necessary. • If you become contaminated during the job, contact the Main Control Room at x7333 for assistance. 	✓
Safety	<ul style="list-style-type: none"> • Electronic Dosimeter • Tank Suit • Respirator/Supplied Air • Overshoes (double) • Gloves(double) • Safety Glasses / Full Face Respirator 	Remove and replace second pair of overshoes when exiting the pit to reduce risk of spreading contamination.	✓
Prep	Check tools: <ul style="list-style-type: none"> • Hex Keys (3/16" & 3/8") • Side Cutter • Wipes • 10" Cable Ties • RAM 		✓
Safety	Check with ISAC Ops re: alpha CAM reading P beam off for at least 30 min before entering target pit Check the General Field of ITW/ ITE	RAM or pole monitor ($\leq 500 \mu\text{Sv/h}$)	✓
0	High Active Cooling Water	<ul style="list-style-type: none"> • Verify valve for supply water closed ✓ • Verify valve for return water closed ✓ 	✓
1	Shutter	<ul style="list-style-type: none"> • Cut cable tie ✓ 	✓

Target Module Connection and Disconnection Procedure		
Document-141576	Release No. 3	Release Date.: 2019-10-23

SEQ	ITEM	NOTE	CHECK
17	HV Fence and HV Cover on TM Service Cap	Limit switches and cables Retract HV Keys	✓
18	Restore HV Keys to Electrical Room	Limit switches signals check in electrical room	✓
19	Start TP1 TP2	ITW/ITE: CG4/CG4S below 200 mTorr (ask ISAC OP)	✓
20	All Turbo Pumps(six) Current Draw Check at Normal Status	Check current draw for each pump on TP controller, current draw at full speed (38kRPM) ≤ 2.0 A Visually confirm TPBVs in pit are opened (red buttons stick out)	✓
21	Return Work Permit and E-log entry		✓

NOTES:

DATE: 2020-11-24
 TARGET: Nb# 6
 TARGET MODULE: TM1 (TM2) TM3 TM4
 STATION: (ITW) ITE
 SIGNATURE 1: 
 SIGNATURE 2: 

SEQ	ITEM	NOTE	CHECK
11	Vacuum System a) TP1 Controller ✓ b) TP2 Controller ✓ c) TP1 BV1 ✓ d) TP2 BV2 ✓ e) IG1 ✓ f) TP1 TP2 Fans ✓	a) Connector on pump body ✓ b) Connector on pump body ✓ c) KF 25 and O-ring, Connector for BV 24 V DC ✓ d) KF 25 and O-ring, Connector for BV 24 V DC ✓ e) Align the gauge pins ✓ f) Attach and switch on all fans (2 of 110 V Plugs for ITW, switch on Extension bar for ITE) ✓	✓
12	Steers ITE: <ul style="list-style-type: none"> • Top • Left • Bottom (right) ITW: <ul style="list-style-type: none"> • X • Y • Common <div style="text-align: right; margin-top: 10px;"><i>TM2</i> ✓</div>	<p style="text-align: center;">ITE-TM2:</p> <ul style="list-style-type: none"> • Top-X • Left-Y • Bottom (right) – Common <p style="text-align: center;">ITW – TM4:</p> <ul style="list-style-type: none"> • X-Top • Y-Left • Common – Bottom (Right) 	✓
13	ISAC Control Page set up (plug, connector)	Surface with <u>EINZEL</u> LENS, IGLIS, and FEBIAD	✓
14	TP1 TP2 Controllers Reset	Electrical room, TP1 and TP2 controllers	✓
15	Water Signals Check a) Target Module: 1. Target, ✓ 2. Tube, ✓ 3. MSP ✓ 4. HS ✓ 5. EE ✓ 6. Coil (1) ✓ 7. Module Window ✓ b) Beamline 2A: 1. Tank ✓ 2. Dump (Plug) ✓ 3. Dump Shielding ✓ 4. 2A Window ✓ 5. Collimator ✓	In Electrical room, water signal panels: Yellow lights should flick at certain frequency and green lights should be constantly on ✓ *If signal is not right, go back to pit and visually check wheel spin in flow sensor for trouble shooting ✓ TM2 and TM4 GE line are not in use (leak), No signal ✓	✓
16	Double Check Module Connection	General, visually check all connections Verify voltage gaps free of cables and waterlines <i>double checked</i> ✓	✓

X 2

SEQ	ITEM	NOTE	CHECK
		• Push down bellow (air cylinder) ✓	✓
2	Compressed Air to Shutter and Valves (x2)	Shutter should be opened (pushed down) ✓	✓
3	Gas Line (5/8" & 11/16")	FEBIAD target only Two manual valves are opened N/A	N/A
4	ITW/ITE Roughing out	Ask ISAC operator rouging out ITW/ITE ✓	✓
5	High Current Cables: a) (A)Target Oven + ✓ b) (B)Target Oven - ✓ c) (C)Tube heater - ✓ d) (D)Tube Heater + ✓ e) (T)60KV Bias ✓ f) (PQ)Coil + N/A/ g) (RU)Coil - N/A/	f) FEBIAD target only g) FEBIAD target only <i>PQ floating</i> <u>RU to 60kv bias</u>	✓
6	Extraction Electrode (I)	✓	✓
7	Two 6-pin connectors (T,H) Ⓞ	Connect grounding wires to 60 kv bias N/A	N/A
8	Einzel Lens (Y)	Einzel lens cable should be routed as far away from all 60 kV corona rings as possible ✓	✓
9	52 Pin Connector (H)	Ground to bias stand ✓	✓
10	a) Water Lines 1. Target Oven ✓ 2. Tube Heater ✓ 3. MSP ✓ 4. EE ✓ 5. HS ✓ 6. Window ✓ 7. Coil 1 ✓ b) No Drip Leaks on Quick Connector (QC) ✓ c) No contact between SST Elbows and QC ✓	a) Water Lines 1. With bypass loop between Ta+ and Ta- on module ✓ 2. With bypass loop between Tu+ and Tu- on module ✓ 3. Bypassed (looped) on station. Cable tie to station. ✓ 4. Connected to module always ✓ b) Open suppl and return valves ✓ 1. Hand check, wipe away water if necessary ✓ 2. SST elbows and quick connectors must be clear of each other, otherwise an electrical short will be produced. ✓	✓