

NCSX June 2007 ETC
TABLE III - Fabrication/Assembly Installation

WBS Number: 75													
WBS Title: Machine Assembly Operations													
Job Numbers: 7501 and 7503													
Job Title: Construction Crew Support (7501)													
Job Title: Machine Assembly Operations (7503)													
Job Manager: Erik Perry													
In-house Fabrication and Assembly and Installation													
Job 7501 - Construction Support Crew													
		K\$			Hours				Duration	Persons		Basis of Estimate	
Description of Task	ACT	M&S	Travel	EAEM	Metrology	EMEM	EMSM	EMTB	in Shifts	per Shift	Assumptions	Note: final designs not yet available - estimates based on conceptual information from others	
LOE Construction Support Crew during machine assy	7501-05						.75 fte	2.0 fte		2.75	crane/fork lift operator 1.0 fte, rigger 1.0 fte, tool crib .75 fte (applies to 2 nd shift also if used)	NSTX assembly	
Total Job 7501		\$0K		0	0	0	0	0					
Job 7503 - Construction Support Crew													
		K\$			Hours				Duration	Persons		Basis of Estimate	
Description of Task	ACT	M&S	Travel	EAEM	Metrology	EMEM	EMSM	EMTB	in Shifts	per Shift	Assumptions	Note: final designs not yet available - estimates based on conceptual information from others	
Assembly of Components for Others													
Fabricate assembly structure		\$80K				96	240	960	20	6	1,376	Design by WBS 1803	
Fabricate structure to go between assembly sleds & FPAs		\$80K				96	240	960			1,376	EWDA - same magnitude as assembly sleds is assumed	
Assemble 3 FPA support stands						48	120	480	15	4	648		
Assemble 3 VV spool piece support stands						32	80	320	10	4	432		
Assemble machine base structure						32	80	320	10	4	432		
Assemble 3 FPA installation carts						32	80	320	10	4	432		
Fabricate 3 laser support poles		\$24K						480	30	2	504		
Fabricate 3 concrete blocks for testing of assembly structure with metrology		\$18K				20		192	12	2	230	Req'd for concrete block on assembly structure test T. Brown requirement	
Exercise assembly structure with concrete block and metrology before start of assembly						80	320	640	40		1,040	T. Brown requirement	
Install test cell metrology site monuments and check them					640	64	160		20	4	864	T. Brown requirement - re-doing what is done for station 5 work	
Test test cell floor deflections with concrete block placed at FPA support positions					120	48	120	480		15	4	768	T. Brown requirement
Exercise assembly structure with FPA-1 before start of assembly		\$0K			320	80	320	640	40		1,360	Review requested 8 weeks of trial runs/metrology	
Machine Assembly													
Install Permanent Base Plates/Columns	7503-020			60			120	480	10	6	660		
Install temp assembly structure						72	180	720	15	6	972	TFTR and NSTX assembly	
Install Lower PF 4.5&6 into prelim position	7503-060						16	32	1	4	48	TFTR and NSTX assembly	
Install 3 Spool Pieces on fixt & test movement	7503-070			40	80		80	320	10	4	520	TFTR and NSTX assembly	
FPA-1 Installed on temp assembly sleds	7503-080										-	TFTR and NSTX assembly	
FPA-2 Installed on temp assembly sleds	7503-110										-	TFTR and NSTX assembly	
FPA-3 Installed on temp assembly sleds	7503-150										-	TFTR and NSTX assembly	
FPA-1 installation and assembly test					320	80	320	640	20		1,360	T. Brown requirement	
FPA-2 installation and assembly test					320	80	320	640	20		1,360	T. Brown requirement	
FPA-3 installation and assembly test					320	80	320	640	20		1,360	T. Brown requirement	
Test movement of FPAs & position checks.	7503-120			20	40		40	160	5	4	260	TFTR and NSTX assembly	
MC Shims		\$36K		60	32	86	216	864	18	6	1,294	shims provided by others; M&S for final sizing	
Install inboard and outboard shims											-	TFTR and NSTX assembly	
Move all FPAs together, check fitup, tack shims											-	TFTR and NSTX assembly	
Weld inboard shims on mating flanges											-	TFTR and NSTX assembly	
Install end TF coils					48		48	192	6	4	288	TFTR and NSTX assembly	
Install spacer supports and spacers							16	64	2	4	80	TFTR and NSTX assembly	
Move FPAs & spacers together & check fitup					32		48	192	6	4	272	TFTR and NSTX assembly	
Remove spacers and machine to fit								64	4	2	64	TFTR and NSTX assembly	
Re-install spacers							16	64	2	4	80	TFTR and NSTX assembly	
Position all FPA's / Spool Pieces @ MC Interface	7503-160			24	48		48	192	6	4	312	TFTR and NSTX assembly	
Install local Platforms around FPA-1	7503-090						32	128	4	4	160	TFTR and NSTX assembly	
Install local Platforms around FPA-2	7503-130						32	128	4	4	160	TFTR and NSTX assembly	

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Job Manager: Erik Perry												
Complete LN2 connections from coils to manifolds	7503-310						80	320	10	4	400	TFTR and NSTX assembly
Connect coil and VV instrumentation							80	320	10	4	400	EWDA TFTR and NSTX assembly
Connect 150C bakeout							40	160	5	4	200	EWDA NSTX operations
<i>Prepare for and perform warm coil testing</i>											-	<i>covered in other WBS</i>
Install cryostat cooling system and instrumentation							320	1280	20	8	1,600	EWDA TFTR and NSTX assembly
Install Cryostat											-	TFTR and NSTX assembly
Install Cryostat upper section and port boots	7503-350						80	320	10	4	400	TFTR and NSTX assembly
Install Midplane Cryostat sections and port boots	7503-360						120	480	15	4	600	TFTR and NSTX assembly
Install Cryostat Circulation Duct	7503-370						40	160	5	4	200	Cryo cooling system instl in WBS 623 TFTR and NSTX assembly
PTP and Cooldown	730.8200						80	80	480		640	TFTR and NSTX operations
Total Job 7503												
		\$334K	-	756	3,860	1,489	7,468	26,776				