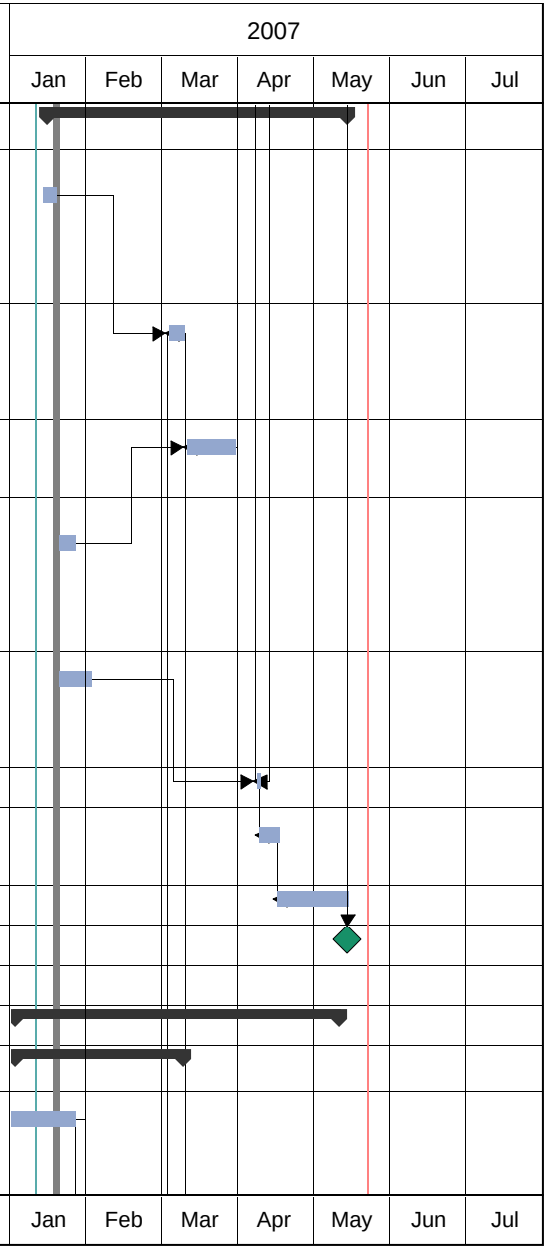
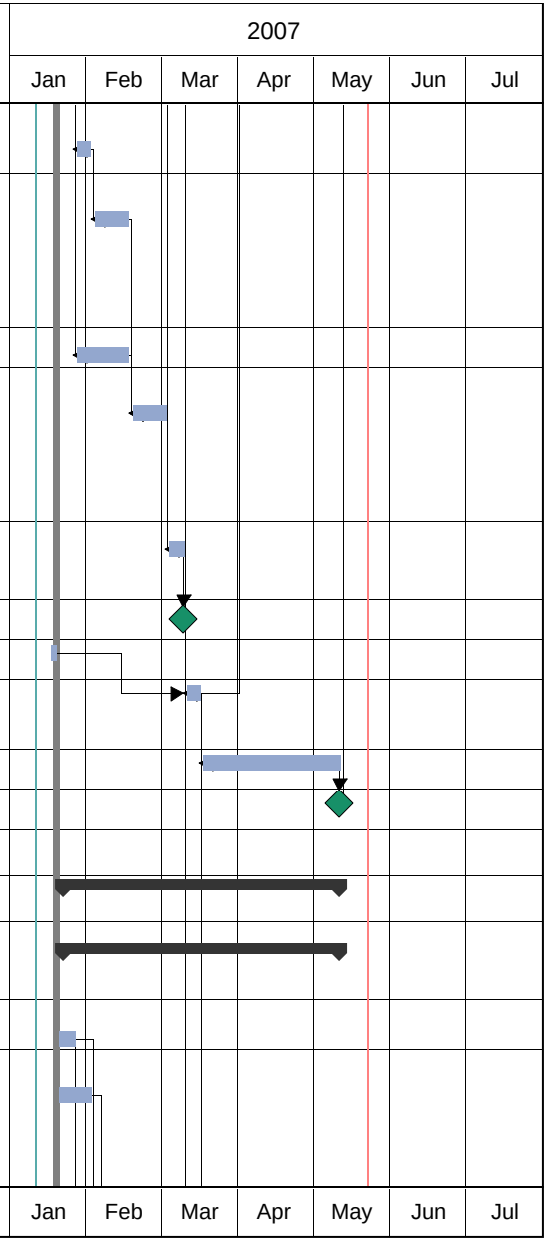
	Activity Name	Duration (Work Days)	Start Date	Finish Date	Predecessors	Free Float	Resources Assigned
1	Bladder tests	**86.00**	**1/15/07**	**5/14/07**			
2	Define test plan. Set up test fixture. Order bladders, fill materials, and candidate epoxies for bladder tests.	5.00	1/15/07	1/19/07		30.00	Dudek
3	Fill bladder. Perform bench test of Teflon bladder to determine properties.	5.00	3/5/07	3/9/07	2, 18	0.00	Gettelfinger
4	Procure/fab prototype bladder for C-C installation	15.00	3/12/07	3/30/07	3, 5	0.00	Dudek
5	Review structural analyses to determine bladder performance requirements. Verify adequate performance of Teflon bladder.	5.00	1/22/07	1/26/07		30.00	Fan
6	Determine if "one size fits all". Develop procurement drawings for bladder.	10.00	1/22/07	2/2/07		45.00	Williamson
7	Conduct FDR of bladder design	1.00	4/9/07	4/9/07	6, 85	0.00	Williamson
8	Resolve FDR issues, release procurement drawings for fabrication	5.00	4/10/07	4/16/07	7	0.00	Williamson
9	Procure bladders for first FPA (2 ea)	20.00	4/17/07	5/14/07	8	0.00	Dudek
10	Bladders available for FPA	0.00	5/14/07	5/14/07	9	1.00	
11							
12	Shims	**94.00**	**1/2/07**	**5/11/07**			
13	Coefficient of friction (COF) tests	**49.00**	**1/2/07**	**3/9/07**			
14	*Order candidate materials for screening tests. Perform screening tests. Pick shim surfaces.*	19.00	1/2/07	1/26/07		0.00	Gettelfinger



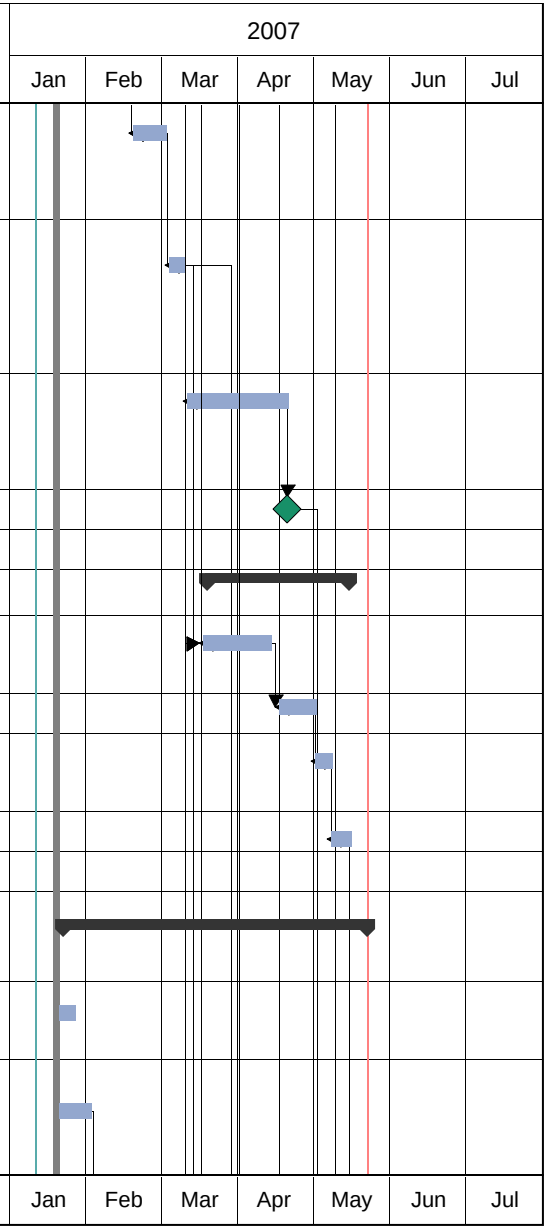
	Activity Name	Duration (Work Days)	Start Date	Finish Date	Predecessors	Free Float	Resources Assigned
15	*Prepare standard shims for additional testing.*	5.00	1/29/07	2/2/07	14	0.00	Gettelfinger
16	*Perform additional COF tests (LN2 testing, cyclic tests, COF versus normal pressure, etc) for standard shims*	10.00	2/5/07	2/16/07	15	0.00	Gettelfinger
17	*Procure material for high COF shims.*	15.00	1/29/07	2/16/07	14	0.00	Gettlefinger
18	*Perform additional COF tests (LN2 testing, cyclic tests, COF versus normal pressure, etc) for high COF shims*	10.00	2/19/07	3/2/07	16, 17	0.00	Gettelfinger
19	*Document and conduct peer review of test results*	5.00	3/5/07	3/9/07	18	0.00	Gettlefinger
20	*Shim surfaces defined*	0.00	3/9/07	3/9/07	19	0.00	
21	Define geometry of standard shim	1.00	1/19/07	1/19/07		35.00	Williamson
22	Finalize procurement drawings. Conduct FDR	5.00	3/12/07	3/16/07	20, 21	0.00	
23	Procure shims	40.00	3/19/07	5/11/07	22	0.00	
24	Shims available for FPA	0.00	5/11/07	5/11/07	23	2.00	
25							
26	Tension tests of a bolted joint	**80.00**	**1/22/07**	**5/11/07**			
27	Procure nuts, studs, and washers ASAP	**80.00**	**1/22/07**	**5/11/07**			
28	*Choose tools for tightening nuts*	5.00	1/22/07	1/26/07		0.00	
29	*Perform analyses to determine geometry and location of high COF shims and placement of new studs. Characterize performance impacts of Low CTE washers.*	10.00	1/22/07	2/2/07		5.00	Brooks



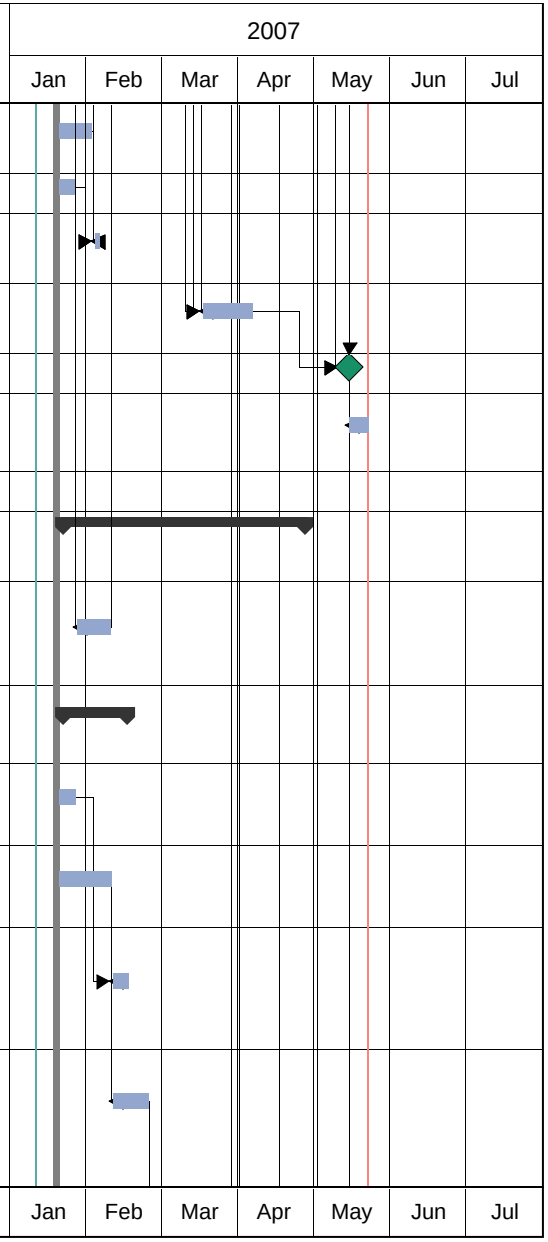
	Activity Name	Duration (Work Days)	Start Date	Finish Date	Predecessors	Free Float	Resources Assigned	2007
								Jan Feb Mar Apr May Jun Jul
30	*Modify current drawing to accommodate hydraulic tensioners and UT inspection. Establish number for each length.*	5.00	2/12/07	2/16/07	28, 29, 73	0.00	Williamson	
31	*Develop cost and lead time estimates for nuts, studs, and washers of different materials.*	10.00	1/22/07	2/2/07		10.00	Williamson	
32	*Complete procurement drawings. Conduct peer review prior to long lead procurement.*	10.00	2/19/07	3/2/07	30, 31	0.00	Williamson	
33	*Procure nuts studs and washers for start of FPA*	50.00	3/5/07	5/11/07	32	0.00	Williamson	
34	*Nuts, studs, and washers available for FPA*	0.00	5/11/07	5/11/07	33	7.00		
35	Develop drawings of prototypical bolted joint for tapped hole and through hole joints	5.00	2/19/07	2/23/07	30	0.00	Williamson	
36	Procure/fab parts for joint test. Use existing parts where possible	15.00	2/26/07	3/16/07	35	47.00	Dudek	
37	Procure tools for tightening nuts	15.00	1/29/07	2/16/07	28	5.00	Dudek	
38	Develop design of test fixture and instrumentation	5.00	3/12/07	3/16/07	3, 35	0.00	Gettelfinger	
39	Set up test fixture and equipment. Perform JHA and pre-job brief prior to proceeding.	10.00	3/19/07	3/30/07	37, 38	0.00	Gettelfinger	
								Jan Feb Mar Apr May Jun Jul

	Activity Name	Duration (Work Days)	Start Date	Finish Date	Predecessors	Free Float	Resources Assigned	2007
								Jan Feb Mar Apr May Jun Jul
40	Measure joint deflection v. preload (include UT or SG measurement of bolt tension). Measure loss of preload after hydraulic pressure is removed.	3.00	4/2/07	4/4/07	39	0.00	Gettlefinger	
41	Cool joint to 80K. Measure joint deflection and preload v. temperature (including candidate washer materials)	3.00	4/5/07	4/9/07	40	0.00	Gettelfinger	
42	Measure joint deflection and preload v. time (days) at RT and 80K	20.00	4/2/07	4/27/07	39	0.00	Gettlefinger	
43	Measure joint deflection and preload v. cooldown cycles	3.00	4/10/07	4/12/07	41	0.00	Gettlefinger	
44	Perform pullout tests for tapped holes	3.00	4/13/07	4/17/07	43	0.00	Gettlefinger	
45	Document and conduct review of test results	5.00	4/30/07	5/4/07	42, 44	7.00	Gettelfinger	
46								
47	Bushing tests	**65.00**	**1/22/07**	**4/20/07**				
48	Indentify candidate schemes for getting a bushing the fits tightly into the hole and around a stud. Prepare sketches.	5.00	1/22/07	1/26/07		0.00	Williamson	
49	Procure bushing materials for tests. Fabricate bushings.	15.00	1/29/07	2/16/07	48	0.00	Dudek	
50	Procure tools and materials required for bushing assembly.	15.00	1/29/07	2/16/07	48	0.00	Dudek	
								Jan Feb Mar Apr May Jun Jul

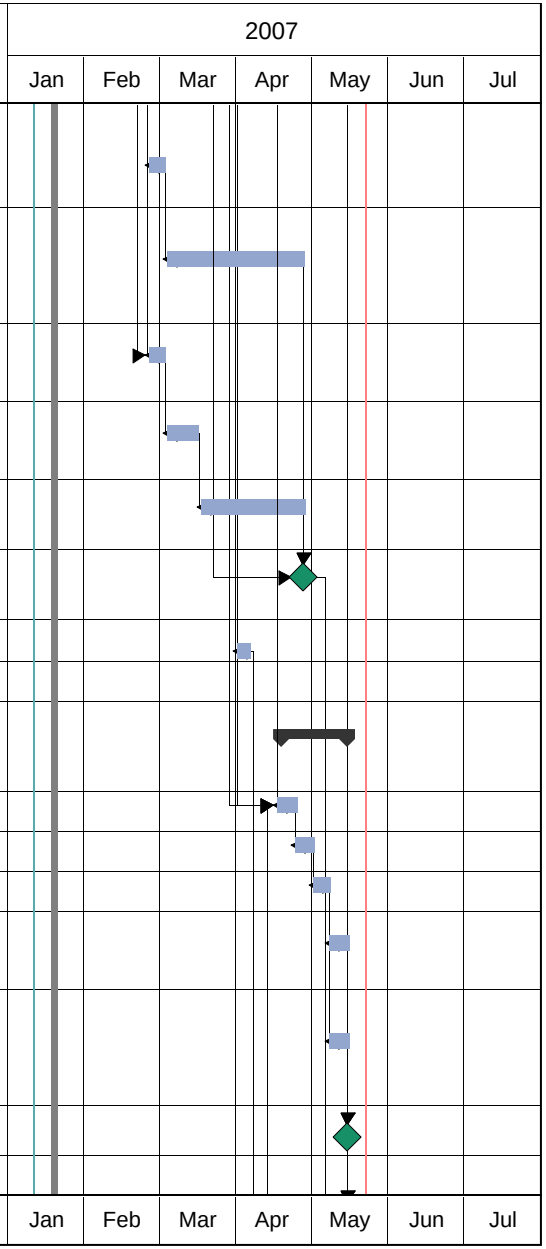
	Activity Name	Duration (Work Days)	Start Date	Finish Date	Predecessors	Free Float	Resources Assigned
51	Perform trial bushing installations (short of gluing them in) on a production coil.	10.00	2/19/07	3/2/07	49, 50	0.00	Viola
52	Document test results. Select bushing configuration. Conduct peer review of test results and bushing selection.	5.00	3/5/07	3/9/07	51	0.00	Viola
53	Procure bushing materials for assembly operations. Fabricate bushings.	30.00	3/12/07	4/20/07	52	0.00	Dudek
54	Bushings available for FPA operations	0.00	4/20/07	4/20/07	53	17.00	
55							
56	Shear tests of a bolted joint	**42.00**	**3/19/07**	**5/15/07**			
57	Procure/fab parts for test and initial assembly	20.00	3/19/07	4/13/07	22, 32, 52	2.00	Dudek
58	Set up test fixture	10.00	4/18/07	5/1/07	44, 57	0.00	Gettlefinger
59	Measure joint deflection version shear load. Pull to failure.	5.00	5/2/07	5/8/07	58	0.00	Gettelfinger
60	Document test results	5.00	5/9/07	5/15/07	59	0.00	Gettelfinger
61							
62	Complete design of MC interface hdw	**87.00**	**1/22/07**	**5/22/07**			
63	Establish design criteria for bolted joints	5.00	1/22/07	1/26/07		82.00	Fan
64	Perform analyses to determine geometry and location of high COF shims and placement of new bolts	10.00	1/22/07	2/2/07		0.00	Brooks



	Activity Name	Duration (Work Days)	Start Date	Finish Date	Predecessors	Free Float	Resources Assigned
65	Perform structural analyses to performance requirements for bolted joints	10.00	1/22/07	2/2/07		0.00	AB, KF
66	Define reference bolted joint design	5.00	1/22/07	1/26/07		5.00	Williamson
67	Conduct PDR to review requirements, design, and development plan	1.00	2/5/07	2/5/07	14, 64, 65, 66	76.00	Williamson
68	Develop specs and drawings for Station 2 and 3 assemblies	15.00	3/19/07	4/6/07	22, 32, 52	27.00	Cole
69	Conduct MC interface FDR	0.00	5/15/07	5/15/07	45, 60, 68	0.00	Williamson
70	Resolve issues, release assembly spec and drawings	5.00	5/16/07	5/22/07	69	0.00	Williamson
71							
72	Perform assembly trials. Procure tools and tooling.	**70.00**	**1/22/07**	**4/27/07**			
73	Survey each coil type using templates. Determine stud length constraints based on access limitations for torquing/tensioning.	10.00	1/29/07	2/9/07	28	0.00	Viola
74	Identify areas that need to be measured in post-VPI and ground	**20.00**	**1/22/07**	**2/16/07**			
75	*Identify "close points" when assembling*	5.00	1/22/07	1/26/07		10.00	Brown
76	*Perform fits of C-C, C-B, B-A, and A-A*	15.00	1/22/07	2/9/07		0.00	Viola
77	*Provide guidance to revise post-VPI procedure to include measurement points*	5.00	2/12/07	2/16/07	75, 76	67.00	Brown
78	Perform trial x-y-z alignments on C1-C2. Demonstrate capability to satisfy alignment requirements with individual shims of uniform thickness.	10.00	2/12/07	2/23/07	76	0.00	Viola



	Activity Name	Duration (Work Days)	Start Date	Finish Date	Predecessors	Free Float	Resources Assigned
79	Establish alignment mechanisms, metrology equipment complement and positioning requirements, etc. Conduct peer review.	5.00	2/26/07	3/2/07	78	0.00	Viola
80	Procure alignment mechanisms, fiducials, lifting equipment, etc. for assembly operations	40.00	3/5/07	4/27/07	79	0.00	Dudek
81	Develop procedures for torquing bolts	5.00	2/26/07	3/2/07	37, 78	0.00	Viola
82	Determine fiducial types and locations	10.00	3/5/07	3/16/07	81	0.00	Viola
83	Procure monuments and related metrology equipment	30.00	3/19/07	4/27/07	82	0.00	Dudek
84	Tools and tooling available for FPA operations	0.00	4/27/07	4/27/07	37, 80, 83	12.00	
85	Prototype bladder installation.	5.00	4/2/07	4/6/07	4	0.00	Viola
86							
87	Finalize preparations for assembly operations	**20.00**	**4/18/07**	**5/15/07**			
88	Document assembly sequence	5.00	4/18/07	4/24/07	7, 22, 44, 52	0.00	Ellis
89	Finalize dimensional control plan	5.00	4/25/07	5/1/07	88	0.00	Brown
90	Finalize assembly procedure	5.00	5/2/07	5/8/07	89	0.00	Viola
91	Establish back office support requirements and data flow	5.00	5/9/07	5/15/07	90	0.00	Viola
92	Train technicians in operation of the metrology equipment and measurement procedures	5.00	5/9/07	5/15/07	90	0.00	Viola
93	RLM authorization for assembly operations	0.00	5/15/07	5/15/07	91, 92	0.00	Dudek
94							



	Activity Name	Duration (Work Days)	Start Date	Finish Date	Predecessors	Free Float	Resources Assigned	2007						
								Jan	Feb	Mar	Apr	May	Jun	Jul
95	Start Station 2 assembly operations	0.00	5/15/07	5/15/07	10, 24, 54, 69, 84,	5.00	Viola							
								Jan	Feb	Mar	Apr	May	Jun	Jul