

DO Upgrade Schedule
Forward Shielding and Trusses

ID	Task Name	Duration	Start	Finish	Predecessors	Constraint	WBS	Resource Names
2038	FORWARD SHIELDING	148.6 w	8/1/97	8/7/00		As Soon As		
2039	EMC Truss & Shield Design and Procurement	102.8 w	8/1/97	8/31/99		As Soon As		
2040	Design Shield	24 w	1/5/98	6/22/98		Start No Ear		MEF130[0.5],DesF130[0.6]
2041	Prepare Shielding Drawings	27 w	6/23/98	1/15/99	2040	As Soon As f		MEF130[0.8],DesF130
2042	Procure Poly and Pb Materials	31 w	1/25/99	8/31/99	2041FS+1 w	As Soon As f		
2043	Procure Fabricated Steel Shielding Pieces	31 w	1/25/99	8/31/99	2041FS+1 w	As Soon As f		MEF130[0.4],MTF130[0.1]
2044	Design Shield Support Structure	44 w	8/1/97	6/23/98		Start No Ear		MEF130[0.5],DesF130[0.9]
2045	Draw Support Structure Ass'y and Details	12 w	10/12/98	1/19/99	2044	Start No Ear		MEF130[0.5],DesF130[0.6]
2046	Procure Support Structure Material and Parts	6 w	1/13/99	2/23/99	2045FS-1 w	As Soon As f		
2047	Design EMC Truss Modifications	17 w	9/14/98	1/26/99		Start No Ear		MEF130[0.4],DesF130[0.1],MTF130[0.1]
2048	Prepare EMC Truss Drawings	10 w	11/9/98	2/2/99	2047SS+8 w	As Soon As f		MEF130[0.4],DesF130[0.3],MTF130[0.1]
2049	Procure EMC Truss Materials	6 w	1/27/99	3/9/99	2047	As Soon As f		
2050	EMC Truss Preassembly Away From DAB	63.6 w	2/3/99	5/12/00		As Soon As		
2051	Assemble/Modify N & S EMC Truss Spacers and Tops	13 w	2/3/99	5/4/99	2048	As Soon As f		MEF130[0.2],MTFmab[1.5],Welder_Day
2052	Fabricate EMC Truss Bottom Bases	9 w	2/10/99	4/13/99	2049SS+2 w	As Soon As f		MEF130[0.2],MTFmab[1.5],Welder_Day
2053	Assemble N EMC Truss Bottom	26 w	5/5/99	11/5/99	2048,2049,2051,2052	As Soon As f		MEF130[0.2],MTFmab[1.5],Welder_Day
2054	Milestone - N EMC Bottom Truss Finished	0 d	11/3/99	11/3/99		Start No Ear		
2055	Move N EMC Bottom Section to Lab G Hardstand	1 d	11/8/99	11/8/99	2054	Start No Ear		
2056	Install Walkways on North Top and Spacers	7 d	11/9/99	11/17/99	2055	Start No Ear		MEF130[0.2],Welder_Day[0.2],MTFmab
2057	Install Walkways on South Top and Spacers	7 d	11/18/99	11/30/99	2056	As Soon As f		MEF130[0.1],MTFmab,Welder_Day[0.2]
2058	Fabricate & Test EMC South Bottom Truss @ MAB	9 w	11/8/99	1/25/00	2054	Start No Ear		MEF130[0.4],MTFmab[1.5],Welder_Day
2059	Move Telescoping Arm Support to DAB	1 d	2/1/00	2/1/00	2058	As Soon As f		
2060	Move N & S Top and N Spacers to Lab G Hardstand	1 d	11/23/99	11/23/99		Start No Ear		
2061	Move S Spacers to Lab G Hardstand	1 d	1/31/00	1/31/00		Start No Ear		
2062	Preassemble N EMC Assembly at Lab G Hardstand	9 d	1/4/00	1/14/00	2055,2060FS+17 d	Start No Ear		MEF130[0.2],MTF130[2],Welder_Day[0.2]
2063	Survey N EMC Assembly	1 d	1/28/00	1/28/00	2062	Start No Ear		Align_Day[2]
2064	Move EMC S Bottom Truss to Lab G Hardstand	1 d	2/1/00	2/1/00	2058,2063	As Soon As f		
2065	Preassemble S EMC Assembly at Lab G Hardstand	2 d	2/2/00	2/3/00	2064	As Soon As f		MEF130[0.2],MTF130[2],Welder_Day[0.2]
2066	Survey S EMC Assembly	1 d	2/28/00	2/28/00	2065	Start No Ear		Align_Day[2]
2067	Disassemble & Move N EMC Ass'y and Support to DAB	1 d	1/29/00	1/31/00	2063	As Soon As f		MEF130[0.2],MTF130[2]
2068	Disassemble & Move S EMC Ass'y and Support to DAB	3 d	5/10/00	5/12/00	2066	Start No Ear		MEF130[0.2],MTF130[2]
2069	Shielding Box Ass'y	26 w	12/2/99	6/15/00		As Soon As		
2070	Assemble N EF Plug Boxes	3 d	12/2/99	12/6/99		Start No Ear		Welder_Day[0.25],MTF130
2071	Assemble S EF Plug Boxes	3 d	12/7/99	12/9/99	2070	As Soon As f		Welder_Day[0.25],MTF130
2072	Assemble N Middle Section Boxes	6 d	12/10/99	12/17/99	2071	As Soon As f		Welder_Day[0.25],MTF130
2073	Assemble S Middle Section Boxes	6 d	1/3/00	1/10/00	2072	As Soon As f		Welder_Day[0.25],MTF130
2074	Assemble N Clamshell Boxes	4 d	1/11/00	1/14/00	2073	As Soon As f		Welder_Day[0.25],MTF130
2075	Assemble S Clamshell Boxes	4 d	1/17/00	1/20/00	2074	As Soon As f		Welder_Day[0.25],MTF130
2076	Reassemble N middle section boxes	6 d	5/22/00	5/30/00	2096FS-1 w	As Soon As f		
2077	Replace mid-piece and lid outer boxes - north	3 d	5/31/00	6/2/00	2076	As Soon As f		
2078	Reassemble S middle section boxes	6 d	6/5/00	6/12/00	2077	As Soon As f		
2079	Replace mid-piece and lid outer boxes - south	3 d	6/13/00	6/15/00	2078	As Soon As f		
2080	Assemble and Install N&S EF Plug	21.2 w	11/12/99	4/25/00		As Soon As		
2081	Move North Core Section to DAB	1 d	11/12/99	11/12/99		Start No Ear		
2082	Move South Core Section to DAB	1 d	11/15/99	11/15/99	2081	Start No Ear		
2083	Install Boxes on Cores	6 d	12/10/99	12/17/99	2071,2082	As Soon As f		MTF130,Welder_Day
2084	Prepare Magnet Hole	1 d	2/28/00	2/28/00	2083	Start No Ear		MTF130[2],Welder_Day
2085	Rework Plugs	2 w	4/10/00	4/21/00	2084	Start No Ear		
2086	Install Plug w/ SAMUS Lifting Fixture	2 d	4/24/00	4/25/00	2085	As Soon As f		MTF130[2]
2087	Assemble/Test N EMC Bottom Truss & Shield	21.4 w	1/17/00	6/14/00		As Soon As		
2088	Install Rollers & Housings on EMC Truss Rails	6 d	2/16/00	2/23/00	2067SS+50 %	As Soon As f		MEF130[0.2],MTF130[0.5]
2089	Move N Middle and Clamshell Cores to DAB	1 d	1/17/00	1/17/00	2072,2074	Start No Ear		
2090	Install Bottom Box on Bottom Middle Core Section	3 d	1/18/00	1/20/00	2072,2089	As Soon As f		MEF130[0.1],MTF130,Welder_Day
2091	Install Bottom Middle Ass'y Onto EMC Truss	1 d	6/8/00	6/8/00	2059,2088,2090,2097	As Soon As f		MEF130,MTF130[2],Crane_Day[0.1]
2092	Secure Side Boxes on Middle Core Section	2 d	1/18/00	1/19/00	2072,2089	As Soon As f		MEF130[0.1],MTF130,Welder_Day,Crane_Day[0.1]
2093	Install Top Box on Top Middle Core Section	2 d	1/20/00	1/21/00	2089,2092	As Soon As f		MEF130[0.1],MTF130,Welder_Day,Crane_Day[0.1]
2094	Install Top Middle Ass'y Onto Bottom Ass'y	1 d	1/24/00	1/24/00	2093	As Soon As f		MEF130,MTF130[2],Crane_Day[0.1]
2095	Install Clamshell Boxes onto Clamshell Cores	5 d	1/24/00	1/28/00	2074,2089	As Soon As f		MEF130[0.1],MTF130,Welder_Day
2096	Rework Middle Piece Shielding - North	6 w	4/17/00	5/26/00		Start No Ear		
2097	Install N Clamshells Onto EMC Truss	3 d	6/5/00	6/7/00	2088,2077	As Soon As f		MEF130[0.5],MTF130[2],Crane_Day[0.1]
2098	Test/survey Middle Section Movement	3 d	6/8/00	6/12/00	2094,2097	As Soon As f		MEF130[0.5],MTF130[2]
2099	Test Clamshell Section Movements	2 d	6/13/00	6/14/00	2098	As Soon As f		MEF130[0.5],MTF130[2]
2100	North Truss Testing Complete	0 w	6/14/00	6/14/00	2087	As Soon As		
2101	Assemble/Test S EMC Bottom Truss & Shield	24 w	1/17/00	7/3/00		As Soon As		
2102	Install Rollers & Housings on EMC Truss Rails	3 d	6/15/00	6/19/00	2068,2099	As Soon As f		MEF130[0.2],MTF130,Crane_Day[0.1]
2103	Move S Middle and Clamshell Cores to DAB	1 d	1/17/00	1/17/00	2073,2075,2087	As Soon As f		
2104	Install Bottom Box on Bottom Middle Core Sections	3 d	1/18/00	1/20/00	2073,2103	As Soon As f		MEF130[0.1],MTF130,Welder_Day
2105	Install Bottom Middle Ass'y Onto EMC Truss	1 d	6/23/00	6/23/00	2102,2104,2111,2079	As Soon As f		MEF130,MTF130[2],Crane_Day[0.1]
2106	Secure Side Boxes on Middle Core Section	2 d	1/21/00	1/24/00	2104	As Soon As f		MEF130[0.1],MTF130,Welder_Day,Crane_Day[0.1]
2107	Install Top Box on Top Middle Core Section	2 d	1/18/00	1/19/00	2073,2103	As Soon As f		MEF130[0.1],MTF130,Welder_Day,Crane_Day[0.1]
2108	Install Top Middle Ass'y Onto Bottom Ass'y	1 d	6/26/00	6/26/00	2105,2079	As Soon As f		MEF130,MTF130[2],Crane_Day[0.1]
2109	Install Clamshell Boxes Onto Clamshell Cores	4 d	1/21/00	1/26/00	2075,2103	As Soon As f		MEF130[0.1],MTF130,Welder_Day,Crane_Day[0.1]

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ID	Task Name	Duration	Start	Finish	Predecessors	Constraint	WBS	Resource Names
2110	Rework Middle Piece Shielding - South	7 w	4/17/00	6/5/00	2109	Start No Ear		
2111	Install S Clamshells Onto EMC Truss	3 d	6/20/00	6/22/00	2102,2110	As Soon As f		MEF130[0.5],MTF130[2],Crane_Day[0.1]
2112	Test/survey Middle Section Movement	3 d	6/27/00	6/29/00	2108,2111	As Soon As f		MEF130[0.5],MTF130[2]
2113	Test Clamshell Section Movements	2 d	6/30/00	7/3/00	2112	As Soon As f		MEF130[0.5],MTF130[2]
2114	South Truss Testing Complete	0 w	7/3/00	7/3/00	2101	As Soon As		
2115	Final Assembly of S EMC Truss	2.4 w	7/5/00	7/20/00		As Soon As		
2116	Install Octant Supports	3 d	7/18/00	7/20/00	1699,2114	As Soon As f		MTF130[2],Welder_Day,Crane_Day[0.1]
2117	Install Readout & VME Crates	3 d	7/5/00	7/7/00	2114	As Soon As f		MTF130,Welder_Day[0.2]
2118	Install MDT Gas Lines	3 d	7/10/00	7/12/00	2117	As Soon As f		MTF130[2],Welder_Day,DAB_Gas_Plumbing
2119	Install Power and Lights	3 d	7/13/00	7/17/00	2118	As Soon As f		MTF130[2],ETF130[0.75],Elect[2.5],Welder_Day
2120	Install Gas/Fire Protection Instrumentation	3 d	7/18/00	7/20/00	2119	As Soon As f		MTF130[2],Welder_Day
2121	Final Assembly of N EMC Truss	3 w	7/18/00	8/7/00		As Soon As		
2122	Install Octant Supports	3 d	7/18/00	7/20/00	1699,2100	As Soon As f		MTF130[2],Welder_Day,Crane_Day[0.1]
2123	Install Readout & VME Crates	3 d	7/21/00	7/25/00	2100,2120	As Soon As f		MTF130,Welder_Day[0.2]
2124	Install MDT Gas Lines	3 d	7/26/00	7/28/00	2123	As Soon As f		MTF130[2],Welder_Day,DAB_Gas_Plumbing
2125	Install Power and Lights	3 d	7/31/00	8/2/00	2124	As Soon As f		MTF130[2],ETF130[0.75],Elect[2.5],Welder_Day
2126	Install Gas/Fire Protection Instrumentation	3 d	8/3/00	8/7/00	2125	As Soon As f		MTF130[2],Welder_Day
2127	EMC Lifting Fixture	20.2 w	11/3/99	4/7/00		As Soon As		
2128	Evaluate EMC Lifting Fixture	4 d	11/3/99	11/8/99		Start No Ear		MEF130
2129	Redesign EMC Lifting Fixture Yoke & EMC Hooks	3 w	1/17/00	2/4/00		Start No Ear		MEF130[0.5]
2130	Obtain New Material	6 w	2/7/00	3/17/00	2129	As Soon As f		
2131	Modifications to Lifting Fixture	3 w	3/20/00	4/7/00	2130	As Soon As f		MTF130,MEF130[0.2],Welder_Day[0.25]
2133	TRUSS MOVEMENT- Late truss installation	11.2 w	6/26/00	9/13/00		As Soon As		
2134	Prepare platform for move	1 w	6/26/00	7/3/00	2135SF	As Soon As f		MTF100[2]
2135	Move ECS calorimeter onto platform	1 w	7/3/00	7/10/00	1011,1008	As Soon As		MTF100[4],Platform,Sidewalk_South,DAB_Pit,ICR_South,ICI
2136	Move platform west	0.6 w	7/11/00	7/13/00	2135	As Soon As		MTF100[5],MEF100,DAB_Pit,Platform,ICR_North,ICR_South,
2137	Move north and south EF's onto platform	1.6 w	7/14/00	7/25/00	2136	As Soon As		MTF100[4],DAB_Pit,Platform,ICR_North,ICR_South,CF_Wiku
2138	M2-Muon End Toroids Installed on Platform	0 w	7/25/00	7/25/00	2137	As Soon As		
2139	Move platform east	0.6 w	7/26/00	7/28/00	2138	As Soon As		MTF100[4],DAB_Pit,Platform,ICR_North,ICR_South,CF_Wiku
2140	Reconnect platform services	2 w	7/31/00	8/11/00	2139	As Soon As f		
2141	Disassemble south EMC truss for move	1 w	7/31/00	8/4/00	2139,2114	As Soon As		MTF100[2],Crane_Day[0.5]
2142	Assemble south EMC on south sidewalk	1 w	8/7/00	8/11/00	2127,2141	As Soon As		MTF100[3],Crane_Day,Sidewalk_South
2143	South EMC Truss Assembled on South Sidewalk	0 w	8/11/00	8/11/00	2142	As Soon As		
2144	Open South EF and Calorimeter for cabling	0.4 w	8/14/00	8/15/00	2143	As Soon As		
2145	Accelerator Engineering Run Ends	0 w	8/1/00	8/1/00		Start No Ear		
2146	Accelerator Shutdown	2 w	8/1/00	8/14/00	2145	As Soon As f		
2147	Accelerator Commissioning Run Begins	0 w	8/14/00	8/14/00	2146	As Soon As		
2148	Disassemble north EMC truss for move	1 w	8/14/00	8/18/00	2121,2139,2142,2100	As Soon As f		Crane_Day[0.5]
2149	Assemble north EMC on north sidewalk	1 w	8/21/00	8/25/00	2148,2127	As Soon As f		MTF100[3],Crane_Day,Sidewalk_North
2150	North EMC Truss Assembled on North Sidewalk	0 w	8/25/00	8/25/00	2149	As Soon As		
2151	Open north EF for A-layer north pixel installation	0.2 w	8/28/00	8/28/00	2150	As Soon As f		
2152	Open north calorimeter for cabling	0.2 w	9/13/00	9/13/00	1839	As Soon As f		
2153	Complete preparation of trusses for octant installation	2 w	8/28/00	9/11/00	2150	As Soon As f		