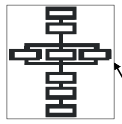


PMD:
Purpose measure diagram that show the Will and Value of the Program/Project

The Implimentation plan of Project must includes PMD, Steplist →Gannt →Procedure WBS and draft of Thing's WBS and its Assurance WBS

Table3.2-2,1 Actual steplist for aircraft system,total

Aircraft system,total

Title : Development of XXX and cost control

Key word : Develop a cost effective XXX aircraft

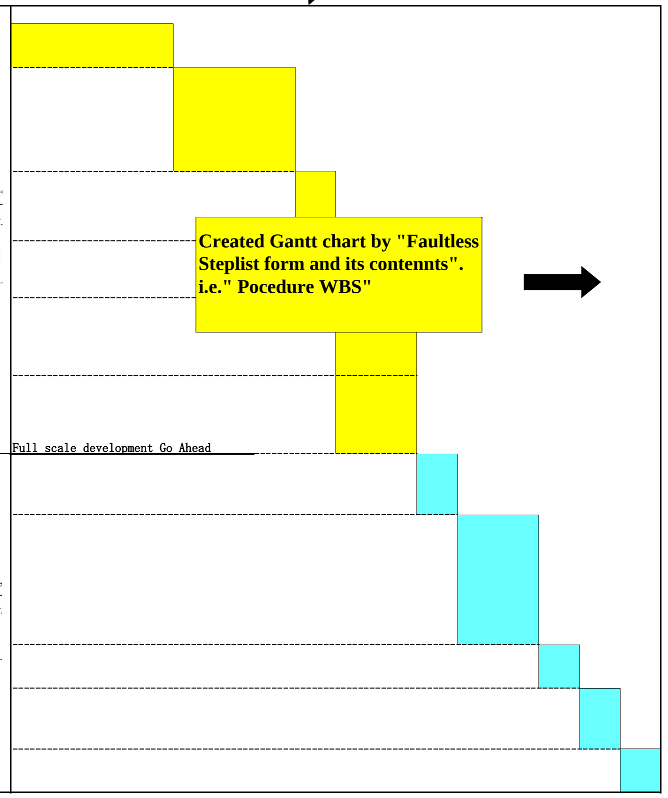
Step list

Div.	Phase	Contents of step		A Step	B Input: Item	C Input: Pre-assurance activity	D Output: Item	E Output: Post assurance activity	F Other conditions	G Who approves the output and schedule	H Scheduled attendes at output examination meetings
Concept design and deploy-ment	Ⅰ－1	Establish-ment of concept		Approval of implementation plan document	1. Design baseline and estimation method of production unit cost 2. Assembly sequence chart (Pre-draft)	1.Establish the development and cost control implementation plan document	1.The development and cost control implementation plan document	1.Approve the development and cost control implementation plan document	1.The implementation plan document is to be approved with design concept examination	1981/12/mid ・Chief engineer ・Project manager ・Government side project manager	Person concerned with planned document examination
	Ⅰ－2			Establishment of basic concept (Design work by DTC work sheet)	1.Design baseline 2.Asssembly sequence chart (Pre-draft) 3.WBS(level 5) 4.1st RFQ to equipment vendor	1.Establish the work priority of DTC worksheet 2.Review of design baseline by designer,prod.planner, purchasig person to proceed DTC 3.Work by DTC worksheet 4.Obtain 1st estimation from vendor 5.Estimate and allocate target cost of production (level 5,1st time)	1.Basic concept 2.WBS 3.Target cost(level 5) 4.List of wants 5.Assembly sequence chart(draft) 6.Preliminary estimation of equipment	1.Examination of the conceptual drawings by company and Government officer	1.Target cost(level 5,pre-liminary must be approved at this phase 2.Wants means the necessary conditions to allocate the target cost from the point of design and manufacturing engineering	1982/2 end ・Chief engineer ・Project manager ・Government side project manager	Person concerned with basic design drawing examination
	Ⅰ－3	Develop-ment of concept		Establishment of basic concept drawing and allocation of target cost(2nd time)	1.Basic concept 2.Assembly sequence chart (Draft) 3.List of wants 4.Preliminary estimation of equipment by vendor 5.1st estimation of equipment by vendor	1.Clearly define the engineering concept and estimate the cost by using the cost estimating worksheet 2.Complete basic concept dwg. 3.Review the target cost(level 5) by basic concept drawing	1.Basic concept drawing 2.Allocated target cost(level 5, 1st time) 3.Created measure,idea(plan), to realize the target cost ・items how to ・Conditions h	1.Adjust and agree how to proceed the task of left side colum among the concerned section(planning, purchasing,quality,		1982/5 end ・Chief engineer ・Project manager ・Government side project manager	Person concerned with basic design drawing examination (Part 1)
	Ⅰ－4	Develop-ment of design	Parallel work	Completion of basic plan drawing(Design work by using DTC trade work sheet)	1.Basic concept drawing 2.Target cost(Level 5) 3.Measure idea(plan) to realize the target cost	1.Trade the concept by using DTC trade worksheet 2.Make the drawing according to the result of trade study 3.Estimate cost by above 2 and review target cost	1.Basic plan drawi 2.Assembly sequen 3.Jig drawing of lon 4.Target cost (lev				
				Selection of engine	1.The wants for engine and adjustment items by design group 2.RFQ to engine manufacturer by Government	1.Explanation of details of engine to prime contractor and Government by potential engine manufacturer 2.DTC trade study at potential engine manufacturer 3.Work together as necessary 4.Draw aircraft plan drawing for each potential engine	1.Final proposal fro engine manufactu 2.Aircraft plan draw potential engine			1982/10 end Chief engineer Project manager Government side project manager	cerned with basic awing examination (Part 2)
				Selection work of equipment and vendor	1.2nd RFQ (draft) a.Engineering requirements b.Conditions to estimate c.Buyer's terms and conditions for basic material purchase agreement d.Requirements for DTC	1.Decide final specification and target cost and send RFQ to potential vendor 2.DTC trade work at vendor 3.Vendor makes final proposal for selection	1.Final proposal of equipment vendor 2.Puechasing agreement with vendor (draft)	1.Compare and select the equipment and vendors 2.Draw plans of selected result 3.Contract with selectd vendor 4.Start DTC trade work at equipment vendor (1)High cost equipments (2)High cost materials	The RFQ to vendor must be twice. 1st RFQ is to find what can be purchased or developed 2nd RFQ is to define final specificatons which we want to buy The 1st RFQ result and detailed examination on aircraft design side		
Detailed design	Ⅱ-1	Detailed plan dwg.		Design work by DTC trade worksheet to complete the detailed drawing	1.Basic plan drawing 2.Target cost(WBS level 5) 3.Measure idea(draft) to realize the target cost	1.Make detailed design cost control implementation plan 2.Design work by DTC trade work sheet 3.Re-allocate target cost by reviewing the detailed plan drawing	1.Detailed design cost control implementation plan drawing 2.Detailed plan drawing 3.Target cost(level 5,final) 4.Assembly sequence chart 5.Jig drawing of long lead item	1.Approve the detail design cost control implementation plan 2.Approve detailed drawings	・Approval of detailed design cost control implementation plan must be done with detail planed drawing examination	1983/3 end ・Chief engineer ・Project manager ・Government side project manager	Person concerned with detailed design drawing examination (Part 1)
	Ⅱ-2		Parallel work	Detailed design(Manufacturing drawing) by cost driving factors	1.Detailed plan drawing 2.Cost driving factors	1.Proceed the design work considering cost driving factor 2.Draw detailed drawing in accordance with results of DTC trade study at detailed drawing phase 3.Meet to examine the plan drawing in detail (P-dwg examination meeting) with production and purchasing people before starting to draw each manufacturing drawing at prime contractor and sub-contractor company	1.Manufacturing drawing(draft) 2.Manufacturing drawing(decided)	Manufacturing drawing(decided) are released after pre-planning work by manufacturing planning group	1.Pre-planing means mfg. Plan by draft of mfg. Drwing 2.Final-planing means mfg.plan by decided mfg.drawing 3.The monitoring of effort in P-drawing examination meeting is evaluated by counting the number of created theme/ideas vs the scheduled curve for monitoring	1983/3 end ・Chief engineer ・Government side project manager	
	Ⅱ-3	Detailed drawing (Mfg.dwg.)		Manufacturing planning	1.Manufacturing drawing(draft) 2.Manufacturing drawing(decided) 3.Target cost(level 5) 4.Main planning work	1.Pre-plan work(adjust and solve the problem of mfg. and purchasing 2.Main plannng work	1.Operation procedure sheet 2.Jig drawing 3.Purchasing conditions 4.Estimation of unit production cost (Ⅱ-3)			about 1984/6 ・Chief of production planning of each company(main and sub)	
Test	Ⅲ-1	Product for test and evaluation	Parallel work	Production of aircraft for test and examination completion	1.Manufacturing drawing 2.Operation procedure sheet 3.Jig drawing 4.Purchasing conditions 5.Rule of summerizing the resultant cost	1.Produce test specimen 2.Produce test aircraft 1.Improve aircraft using by results of engineering and flight test	1.Tested specimen 2.Improved aircraft 3.Sum of practical costs	1.Examine and evaluate the final results in development examination meeting		1986/3 end ・Chief engineer ・Project manager ・Government side project manager	Person concerned with completion examination
	Ⅲ-2			Final examination and verifi-cation of unit production cost	1.Improved aircraft 2.Sum of practical cost in development	1.Evaluate results of test aircraft and choose the planned improvement in production aircraft 2.Estimate to do the above	1.Improvements item for productio 2.Estimation of production cost 3.Estimation of production jig	1.Prepare the production phase contract 2.Summarize the results and activities of DTC work		Estimation completion for production budget 1985/3 end	

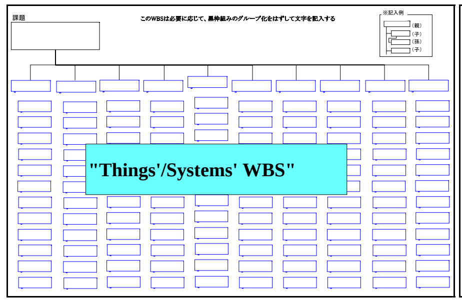
(Note)1. To reach the target cost, an evaluation must be done by comparing the scheduled cost status curve and the present cost status curve in each stage.
(Note)2. To proceed lifecycle cost design, only look at the cost difference between comparable plans.

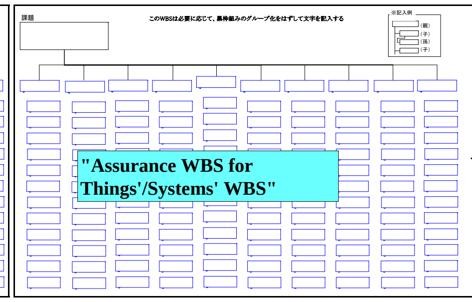
"Fautless Steplist", to create "Fautless Gannt chart and "Procedure WBS"

Created Gantt chart by "Faultless Steplist form and its contennts". i.e." Pocedure WBS"

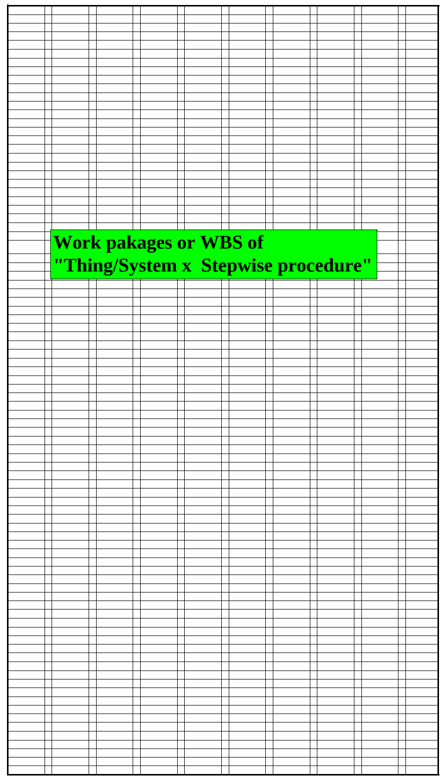


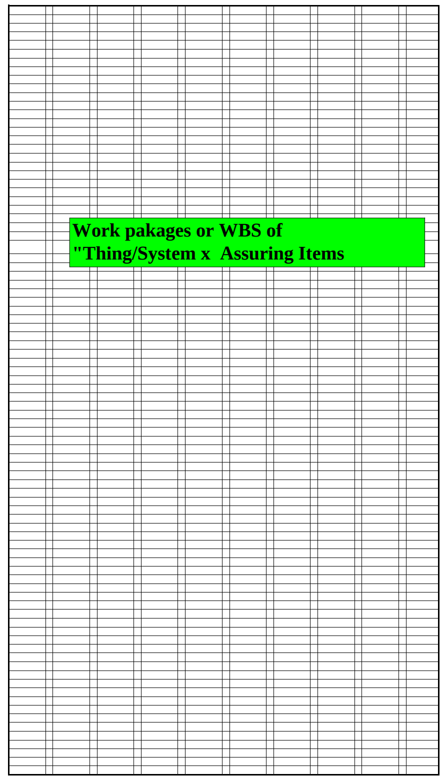
Created Gantt chart by "Faultless Steplist form and its contennts". i.e." Pocedure WBS"





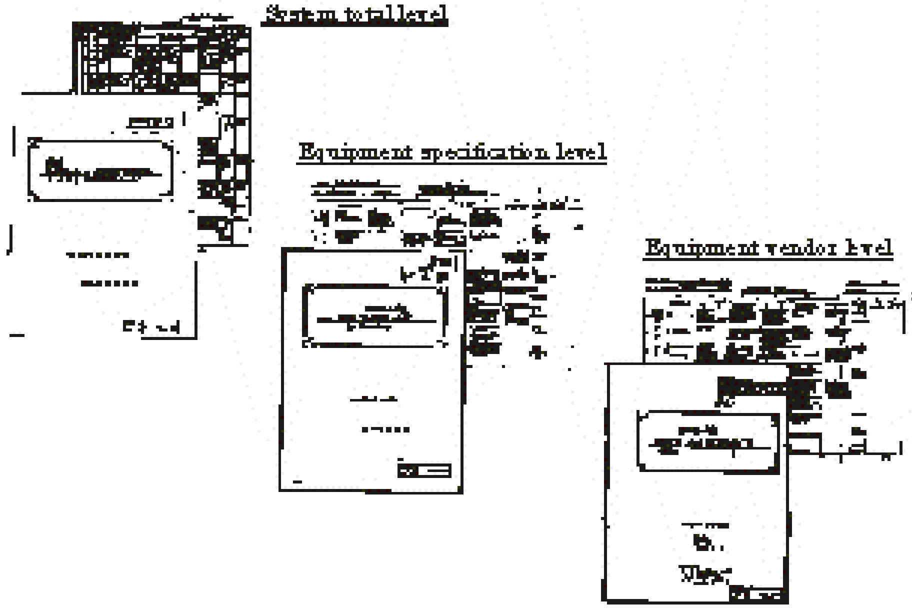
"Assuring Items WBS"
eg.
Misson success
(R &M),
Cost,
(develpomemt cost,
Unit production cost,
life cycle cost)
Schedule,
Safety,
Qaulity,
Configuration,





Hieratical Stepwised Plan by Format of Steplist for creating faultess procedureat

Fig.3.2-2 Hierarchical example of implementation plan for development and DTC cost control



Hieratical organization with combined Inductive approach and Deductive aproach

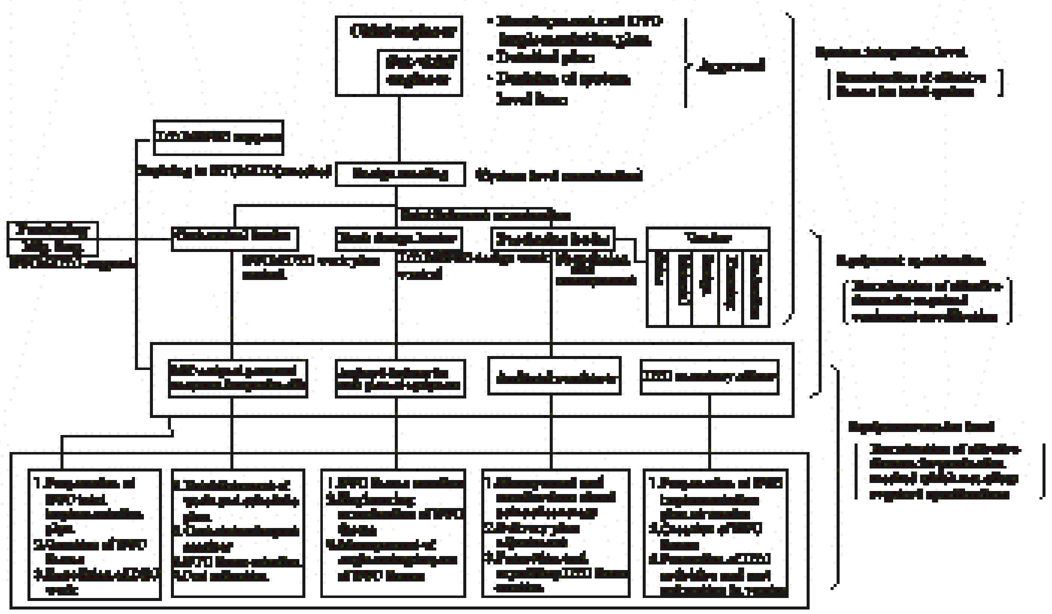



Fig.3.2-1 Hierarchy of DTC activity including vendor (Ref. [5])