

Aaron Hudson – Project Management in F1 – Rear Wing Assessment

The plan (Figure 1) has been built around a hard constraint: the requirement to deliver a complete set of new Rear Wings to the Race Team by 13th April 2025, in advance of the race event on 20th April.

Each component of the Rear Wing Assembly has been scheduled to run in parallel to optimise the plan. The Gantt chart shows with multiple critical paths ensuring that completion of sub-components of the Rear Wing Assembly are finalised collectively. (Figure 2)

The Rear Wing Mainplane has been identified as the primary critical path and this is highlighted in the Gantt chart. This is driven by its longer manufacturing lead time, and mandatory non-destructive testing. As a result, the plan deliberately drives other sub-components to the Rear Wing Mainplane timeline, ensuring these are not completed either significantly earlier or later than required for efficient assembly.

Secondary critical paths exist through other sub-assemblies, particularly where tooling manufacture and composite production are tightly planned with minimal float. These paths are intentionally aligned to complete just ahead of final assembly, reducing work-in-progress while still meeting the delivery window. This structure reflects a balance between schedule compression and manufacturing practicality.

I have made several assumptions to make the plan viable. First, it assumes that four complete rear wings are required. Second, it assumes that design and manufacturing resources are available as planned. Third, it assumes that external suppliers are operational and capable of meeting the stated lead times, particularly for tooling and specialist processes. Additionally, it assumes that the Race Team require delivery of the Rear Wings one week prior to the race event allowing for car build.

Finally, the plan assumes that NDT and manufacturing durations are consistent with historical norms and do not introduce unexpected delays.

There are several questions that could impact delivery and require confirmation. Firstly, the final shipping cut-off date for the race event must be confirmed, as this would then require replanning of planned dates and become the new end date for the project. Any anticipated design changes as this may impact manufacturing lead times.

Testing requirements also need clearer definition, including what structural or regulatory tests are required, if any, and how long they will realistically take. Finally, upcoming team events or resource bottlenecks should be reviewed, as even short-term disruptions could impact a schedule with limited float.

In summary, the plan is data-led and aligned to the hard delivery constraint. It has been fully optimised to minimise float and ensure efficient delivery for each Rear Wing Assembly.

Figure 1 – Rear Wing Project Plan & Gantt Chart

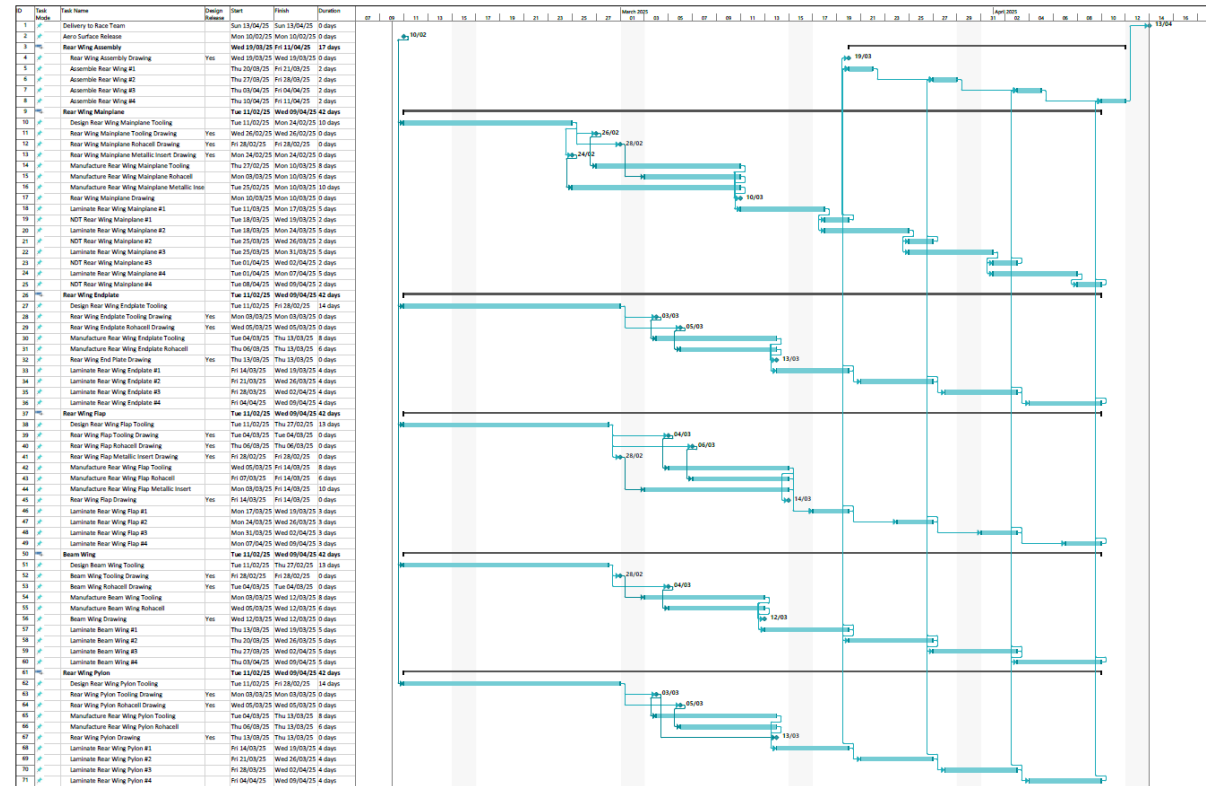


Figure 2 – Gantt Chart of Plan Highlighting the Critical Paths

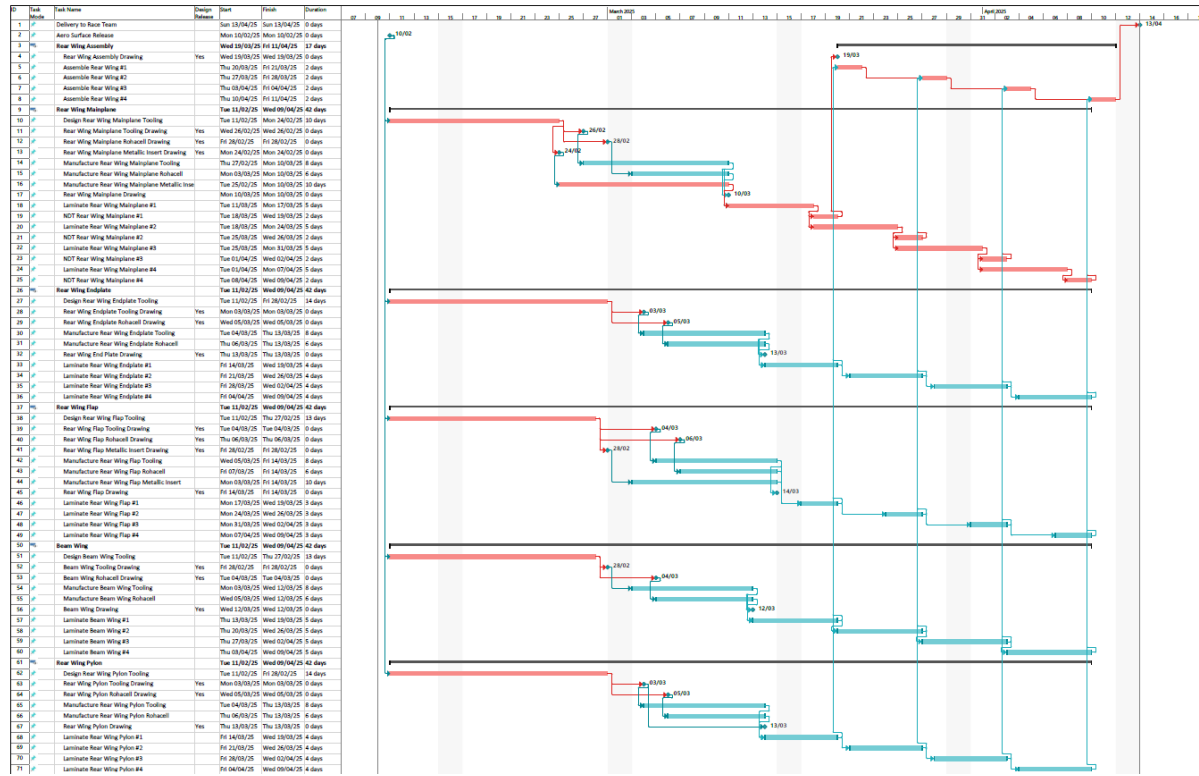


Figure 3 – Copy of Excel Output File of Project Tasks

Task #	Name	Design Release	Start	Finish	Duration	Predecessors	Successors
1	Delivery to Race Team		13-Apr-25	13-Apr-25	0 days	8	
2	Aero Surface Release		10-Feb-25	10-Feb-25	0 days		10,27,38,51,62
3	Rear Wing Assembly		19-Mar-25	11-Apr-25	17 days		
4	Rear Wing Assembly Drawing	Yes	19-Mar-25	19-Mar-25	0 days	19	
5	Assemble Rear Wing #1		20-Mar-25	21-Mar-25	2 days	19,33,46,57,68	6
6	Assemble Rear Wing #2		27-Mar-25	28-Mar-25	2 days	5,21,34,47,58,69	7
7	Assemble Rear Wing #3		03-Apr-25	04-Apr-25	2 days	6,23,35,48,59,70	8
8	Assemble Rear Wing #4		10-Apr-25	11-Apr-25	2 days	7,25,36,49,60,71	1
9	Rear Wing Mainplane		11-Feb-25	09-Apr-25	42 days		
10	Design Rear Wing Mainplane Tooling		11-Feb-25	24-Feb-25	10 days	2	11,12,13
11	Rear Wing Mainplane Tooling Drawing	Yes	26-Feb-25	26-Feb-25	0 days	10	14
12	Rear Wing Mainplane Rohacell Drawing	Yes	28-Feb-25	28-Feb-25	0 days	10	15
13	Rear Wing Mainplane Metallic Insert Drawing	Yes	24-Feb-25	24-Feb-25	0 days	10	16
14	Manufacture Rear Wing Mainplane Tooling		27-Feb-02	10-Mar-25	8 days	11	17,18
15	Manufacture Rear Wing Mainplane Rohacell		03-Mar-25	10-Mar-25	6 days	12	18
16	Manufacture Rear Wing Mainplane Metallic Inserts		25-Feb-25	10-Mar-25	10 days	13	18
17	Rear Wing Mainplane Drawing	Yes	10-Mar-25	10-Mar-25	0 days	14	
18	Laminate Rear Wing Mainplane #1		11-Mar-25	17-Mar-25	5 days	14,15,16	19,20
19	NDT Rear Wing Mainplane #1		18-Mar-25	19-Mar-25	2 days	18	5,4
20	Laminate Rear Wing Mainplane #2		18-Mar-25	24-Mar-25	5 days	18	21,22
21	NDT Rear Wing Mainplane #2		25-Mar-25	26-Mar-25	2 days	20	6
22	Laminate Rear Wing Mainplane #3		25-Mar-25	31-Mar-25	5 days	20	23,24
23	NDT Rear Wing Mainplane #3		01-Apr-25	02-Apr-25	2 days	22	7
24	Laminate Rear Wing Mainplane #4		01-Apr-25	07-Apr-25	5 days	22	25
25	NDT Rear Wing Mainplane #4		08-Apr-25	09-Apr-25	2 days	24	8
26	Rear Wing Endplate		11-Feb-25	09-Apr-25	42 days		
27	Design Rear Wing Endplate Tooling		11-Feb-25	28-Feb-25	14 days	2	28,29
28	Rear Wing Endplate Tooling Drawing	Yes	03-Mar-25	03-Mar-25	0 days	27	30
29	Rear Wing Endplate Rohacell Drawing	Yes	05-Mar-25	05-Mar-25	0 days	27	31
30	Manufacture Rear Wing Endplate Tooling		04-Mar-25	13-Mar-25	8 days	28	32,33
31	Manufacture Rear Wing Endplate Rohacell		06-Mar-25	13-Mar-25	6 days	29	33
32	Rear Wing End Plate Drawing	Yes	13-Mar-25	13-Mar-25	0 days	30	

33	Laminate Rear Wing Endplate #1		14-Mar-25	19-Mar-25	4 days	30,31	5,34
34	Laminate Rear Wing Endplate #2		21-Mar-25	26-Mar-25	4 days	33	6,35
35	Laminate Rear Wing Endplate #3		28-Mar-25	02-Apr-25	4 days	34	7,36
36	Laminate Rear Wing Endplate #4		04-Apr-25	09-Apr-25	4 days	35	8
37	Rear Wing Flap		11-Feb-25	09-Apr-25	42 days		
38	Design Rear Wing Flap Tooling		11-Feb-25	27-Feb-25	13 days	2	39,40,41
39	Rear Wing Flap Tooling Drawing	Yes	04-Mar-25	04-Mar-25	0 days	38	42
40	Rear Wing Flap Rohacell Drawing	Yes	06-Mar-25	06-Mar-25	0 days	38	43
41	Rear Wing Flap Metallic Insert Drawing	Yes	28-Feb-25	28-Feb-25	0 days	38	44
42	Manufacture Rear Wing Flap Tooling		05-Mar-25	14-Mar-25	8 days	39	45,46
43	Manufacture Rear Wing Flap Rohacell		07-Mar-25	14-Mar-25	6 days	40	46
44	Manufacture Rear Wing Flap Metallic Insert		03-Mar-25	14-Mar-25	10 days	41	46
45	Rear Wing Flap Drawing	Yes	14-Mar-25	14-Mar-25	0 days	42	
46	Laminate Rear Wing Flap #1		17-Mar-25	19-Mar-25	3 days	42,43,44	5,47
47	Laminate Rear Wing Flap #2		24-Mar-25	26-Mar-25	3 days	46	6,48
48	Laminate Rear Wing Flap #3		31-Mar-25	02-Mar-25	3 days	47	7,49
49	Laminate Rear Wing Flap #4		07-Apr-25	09-Apr-25	3 days	48	8
50	Beam Wing		11-Feb-25	09-Apr-25	42 days		
51	Design Beam Wing Tooling		11-Feb-25	27-Feb-25	13 days	2	52,53
52	Beam Wing Tooling Drawing	Yes	28-Feb-25	28-Feb-25	0 days	51	54
53	Beam Wing Rohacell Drawing	Yes	04-Mar-25	04-Mar-25	0 days	51	55
54	Manufacture Beam Wing Tooling		03-Mar-25	12-Mar-25	8 days	52	56,57
55	Manufacture Beam Wing Rohacell		05-Mar-05	12-Mar-25	6 days	53	57
56	Beam Wing Drawing	Yes	12-Mar-25	12-Mar-25	0 days	54	
57	Laminate Beam Wing #1		13-Mar-25	19-Mar-25	5 days	54,55	5,58
58	Laminate Beam Wing #2		20-Mar-25	26-Mar-25	5 days	57	6,59
59	Laminate Beam Wing #3		27-Mar-25	02-Apr-25	5 days	58	7,60
60	Laminate Beam Wing #4		03-Apr-25	09-Apr-25	5 days	59	8
61	Rear Wing Pylon		11-Feb-25	09-Apr-25	42 days		
62	Design Rear Wing Pylon Tooling		11-Feb-25	28-Feb-25	14 days	2	63,64
63	Rear Wing Pylon Tooling Drawing	Yes	03-Mar-25	03-Mar-25	0 days	62	65,67
64	Rear Wing Pylon Rohacell Drawing	Yes	05-Mar-25	05-Mar-25	0 days	62	66
65	Manufacture Rear Wing Pylon Tooling		04-Mar-25	13-Mar-25	8 days	63	68
66	Manufacture Rear Wing Pylon Rohacell		06-Mar-25	13-Mar-25	6 days	64	68
67	Rear Wing Pylon Drawing	Yes	13-Mar-25	13-Mar-25	0 days	63	

68	Laminate Rear Wing Pylon #1		14-Mar-25	19-Mar-25	4 days	65,66	5,69
69	Laminate Rear Wing Pylon #2		21-Mar-25	26-Mar-25	4 days	68	6,70
70	Laminate Rear Wing Pylon #3		28-Mar-25	02-Apr-25	4 days	69	7,71
71	Laminate Rear Wing Pylon #4		04-Apr-25	09-Apr-25	4 days	70	8

Figure 4 – Copy of Excel Output File for Design Team

Task #	Name	Design Release	Required By
13	Rear Wing Mainplane Metallic Insert Drawing	Yes	24-Feb-25
11	Rear Wing Mainplane Tooling Drawing	Yes	26-Feb-25
12	Rear Wing Mainplane Rohacell Drawing	Yes	28-Feb-25
41	Rear Wing Flap Metallic Insert Drawing	Yes	28-Feb-25
52	Beam Wing Tooling Drawing	Yes	28-Feb-25
28	Rear Wing Endplate Tooling Drawing	Yes	03-Mar-25
63	Rear Wing Pylon Tooling Drawing	Yes	03-Mar-25
39	Rear Wing Flap Tooling Drawing	Yes	04-Mar-25
53	Beam Wing Rohacell Drawing	Yes	04-Mar-25
29	Rear Wing Endplate Rohacell Drawing	Yes	05-Mar-25
64	Rear Wing Pylon Rohacell Drawing	Yes	05-Mar-25
40	Rear Wing Flap Rohacell Drawing	Yes	06-Mar-25
17	Rear Wing Mainplane Drawing	Yes	10-Mar-25
56	Beam Wing Drawing	Yes	12-Mar-25
32	Rear Wing End Plate Drawing	Yes	13-Mar-25
67	Rear Wing Pylon Drawing	Yes	13-Mar-25
45	Rear Wing Flap Drawing	Yes	14-Mar-25
4	Rear Wing Assembly Drawing	Yes	19-Mar-25