



DEL *CAR* FORCE

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목차

- Introduction
- Modeling
- Kinematics
- Sequences
- Feedback



DELTA FORCE



-Delta Force : 미국의 대테러 특수부대

자동차업계의 특수부대가 되자!

모델링 선정 & 이유



"APACHE"



**BOEING AH-64
Attack Helicopter**

- 단순하지 않은 외형
- 다양한 Kinematics
- 다양하고 큰 움직임

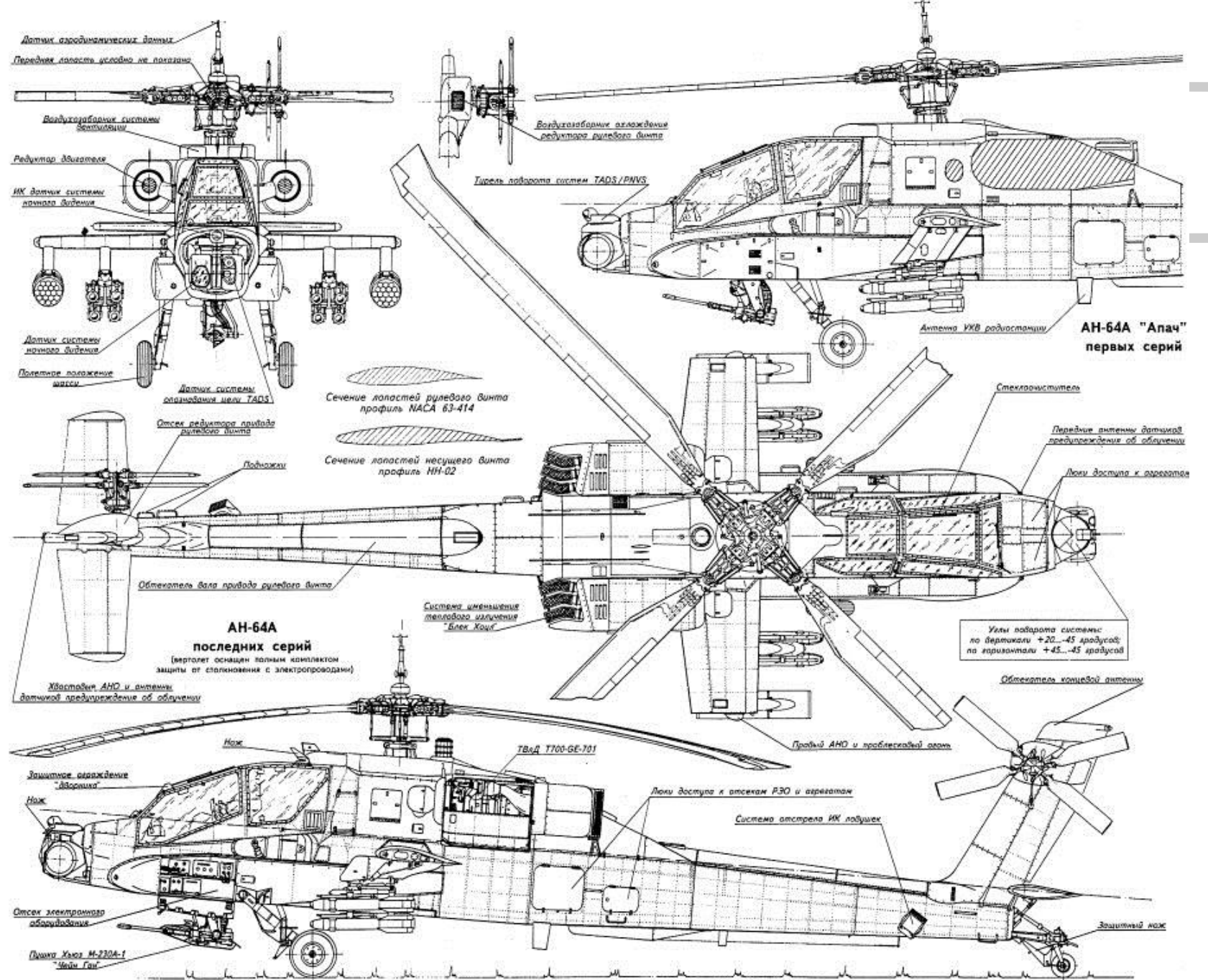
출처 :
<http://www.vbader.com/ahaphe.html>

최종 모델





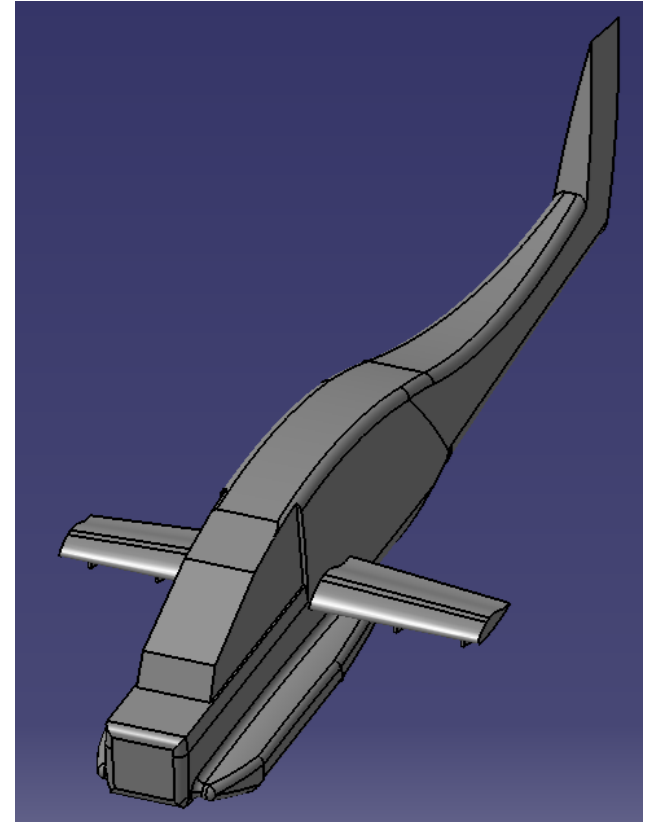
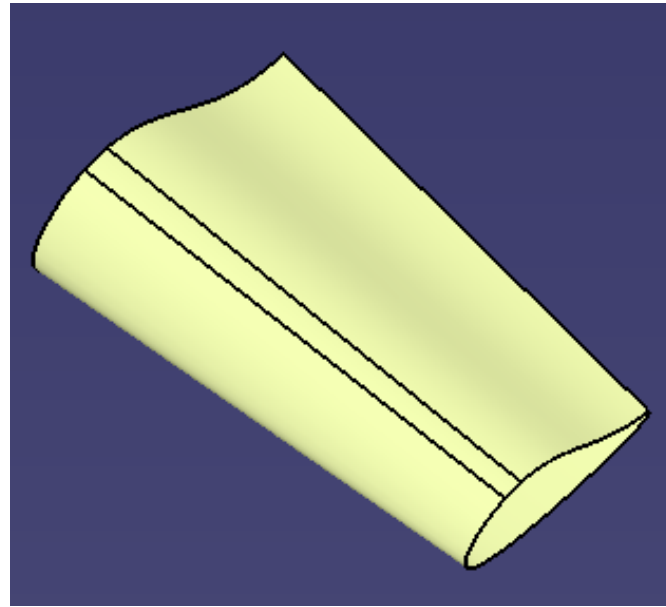
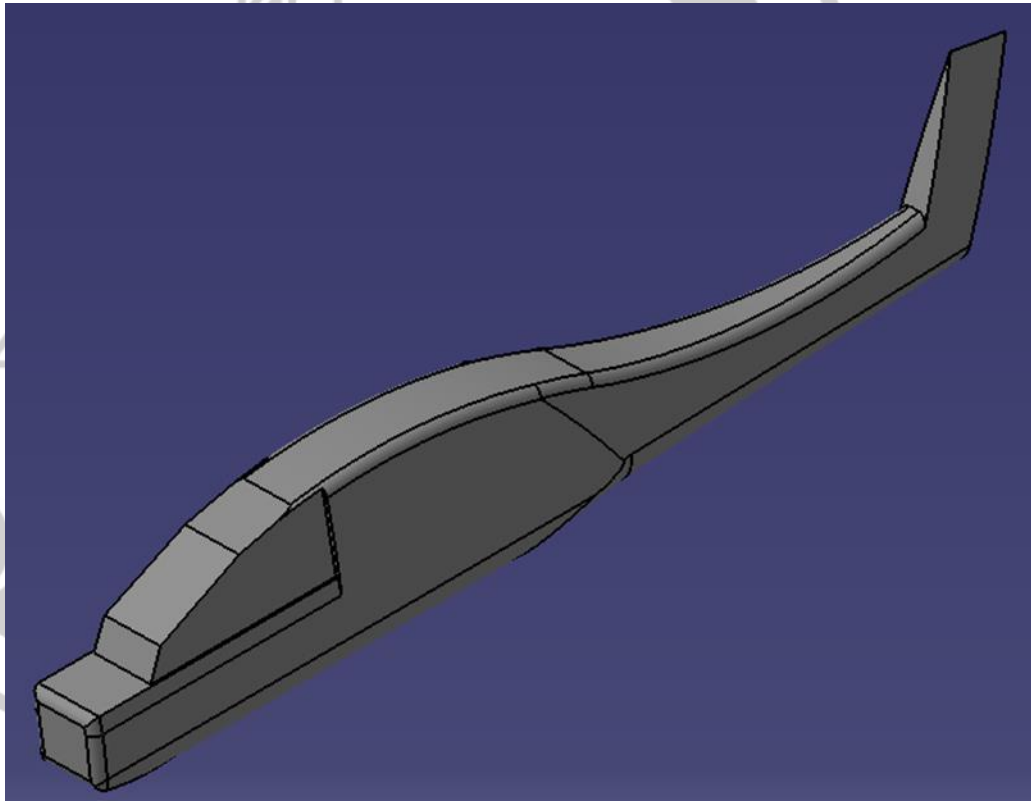
출처 :
http://www.parkflyer.ru/ru/bl ogs/view_entry/2466/



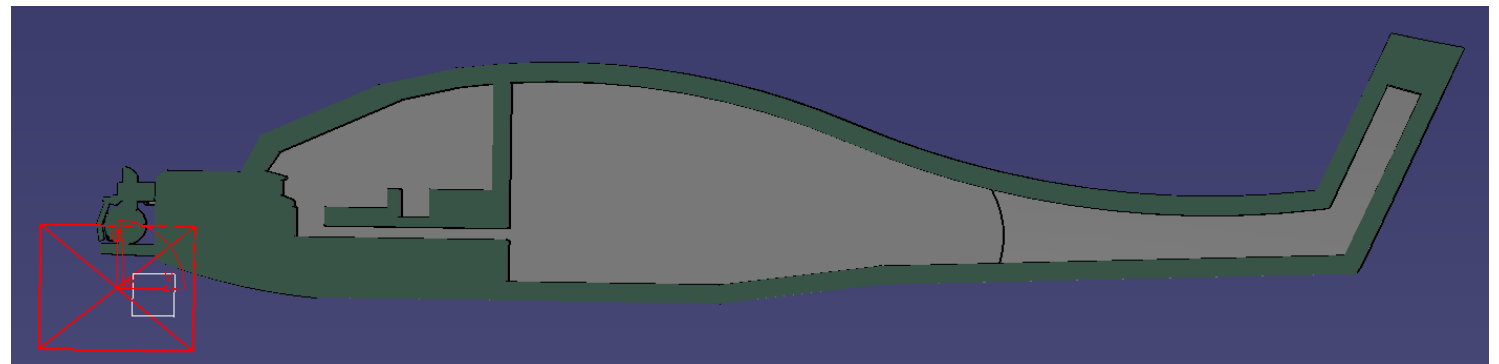
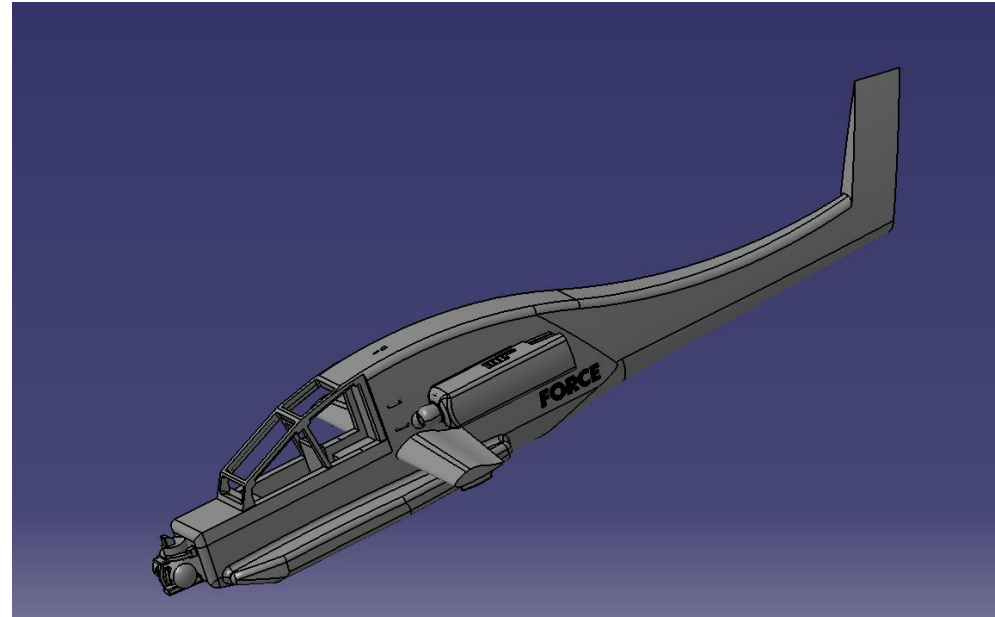
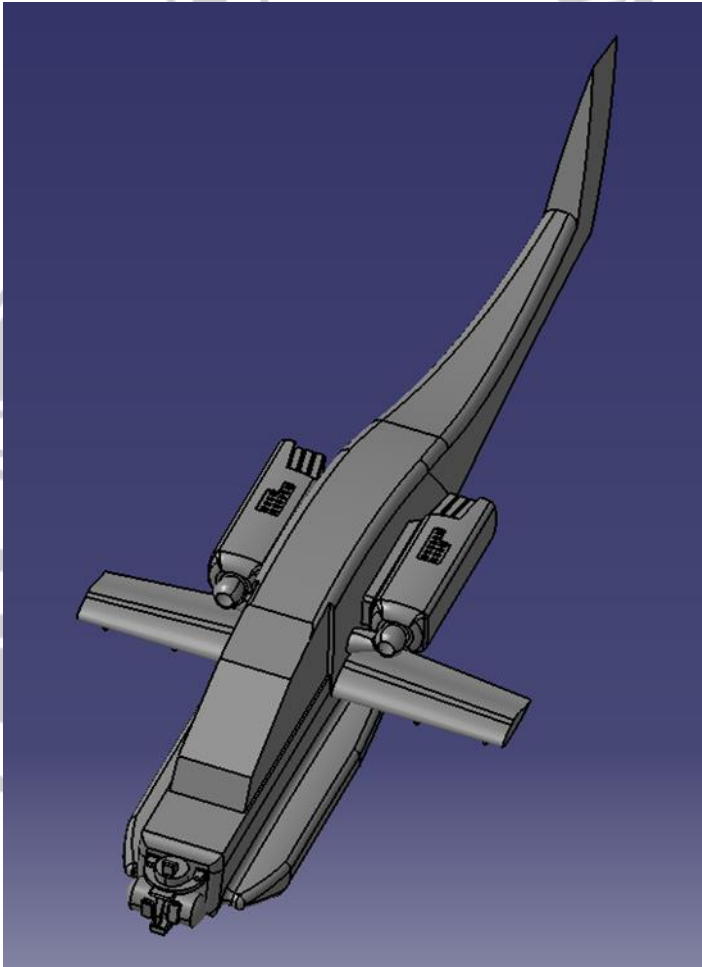


모델링 과정

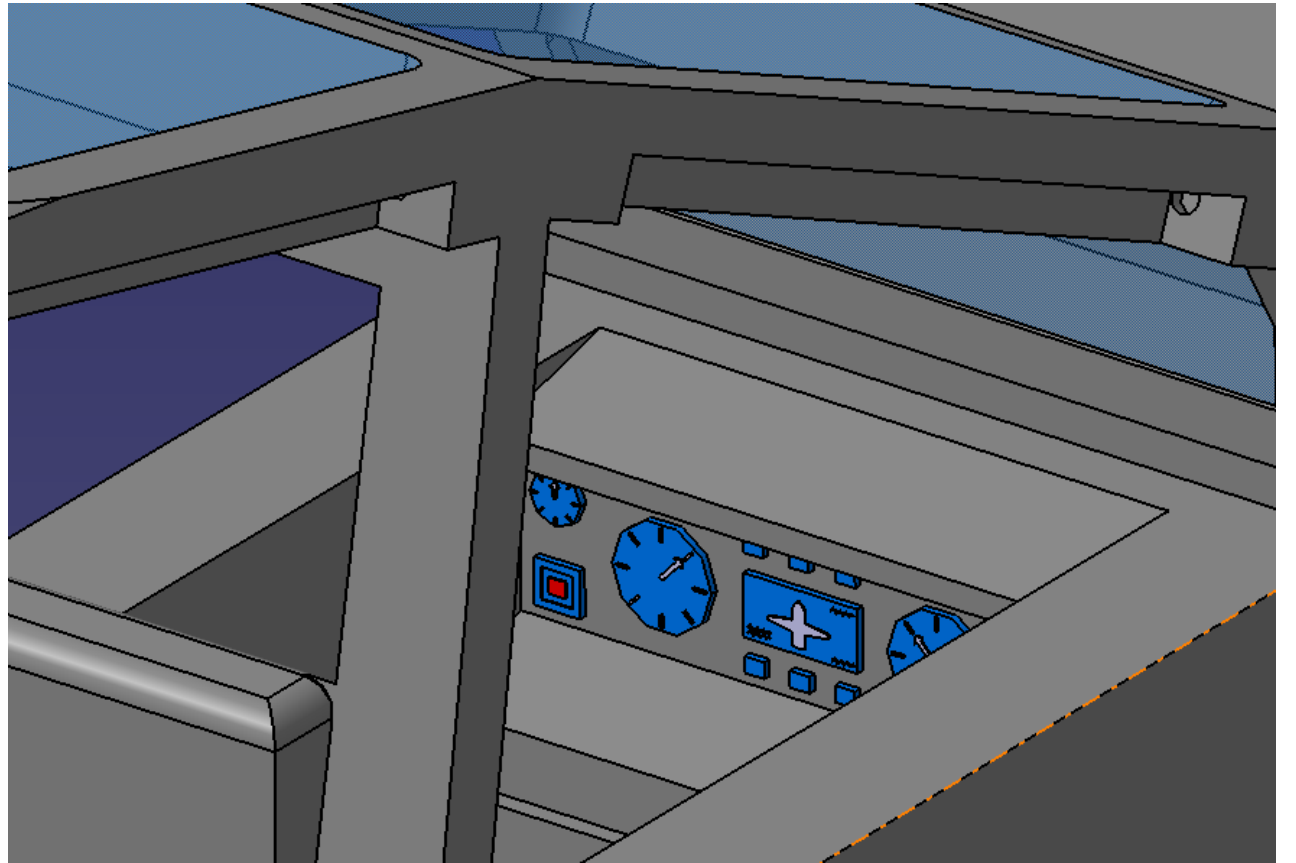
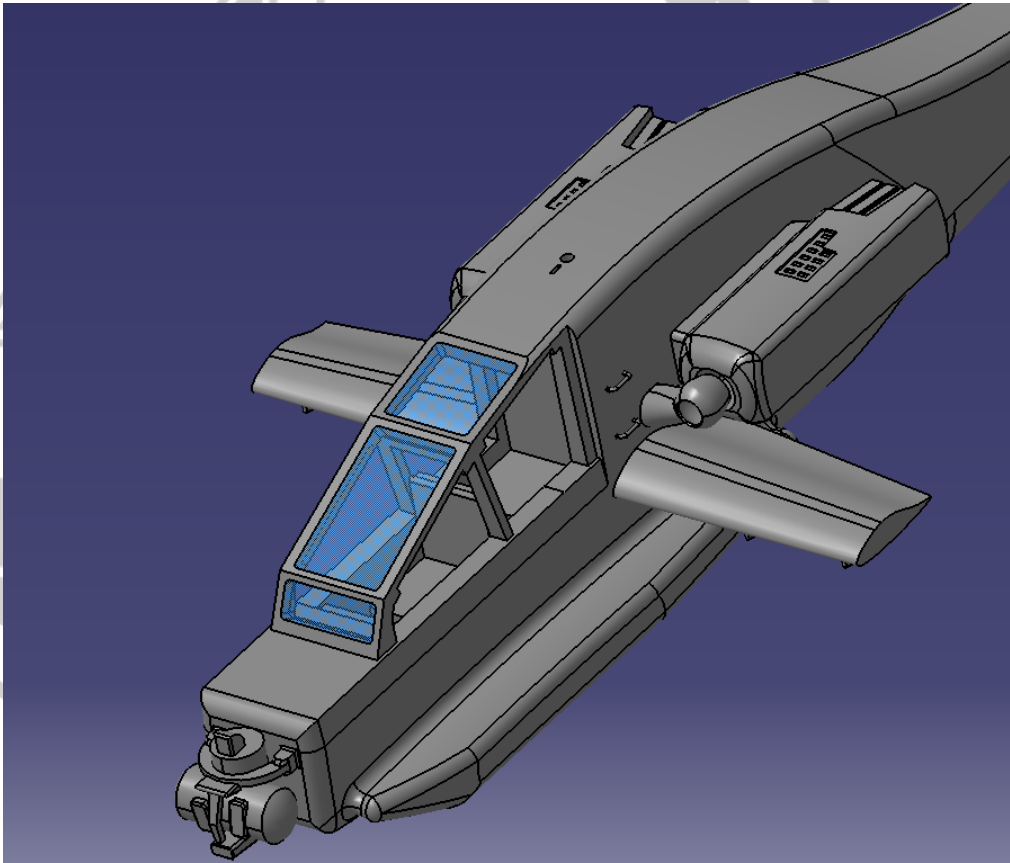
Apache body



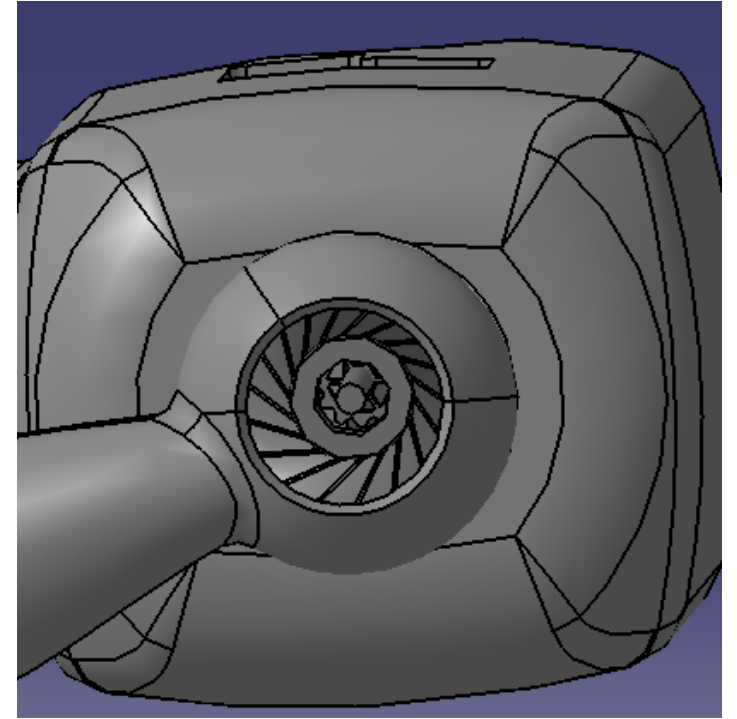
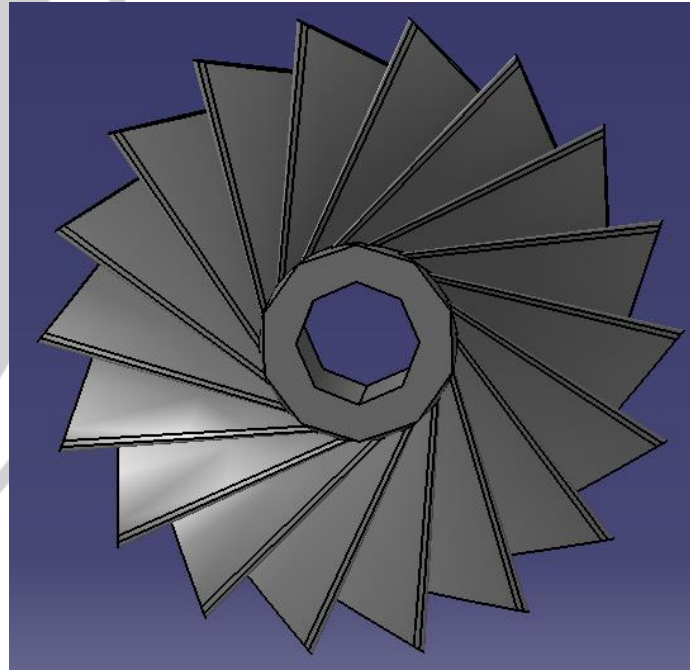
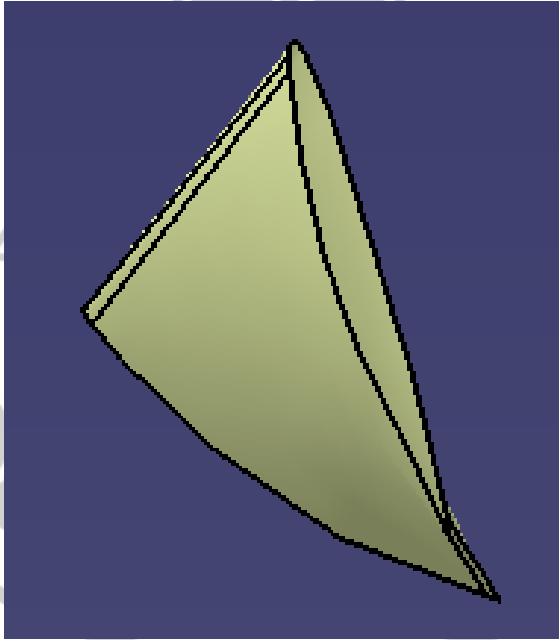
Apache body



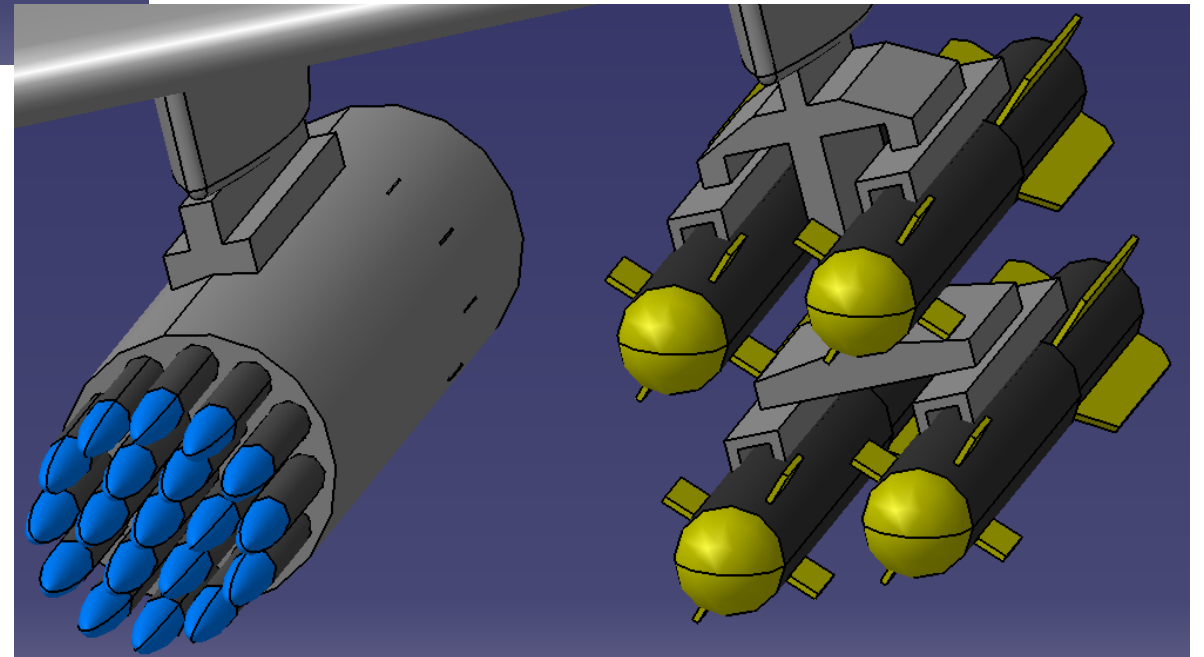
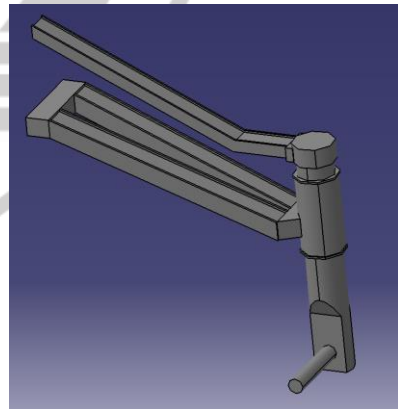
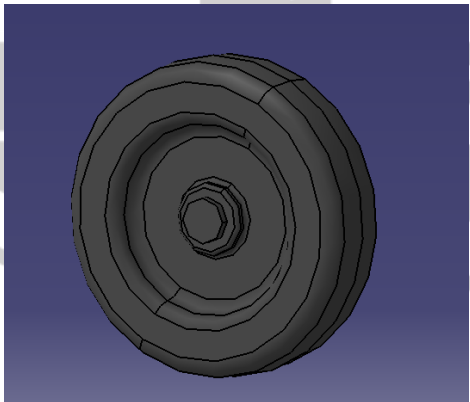
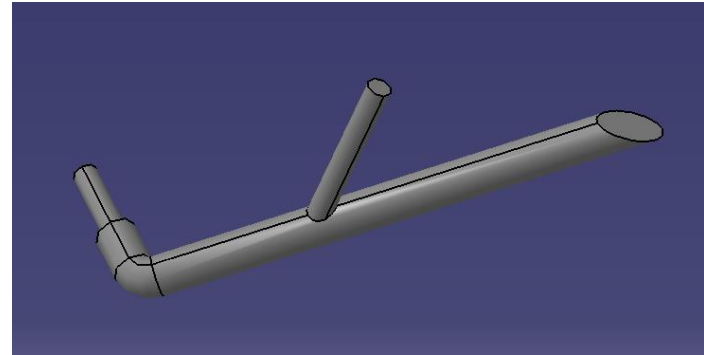
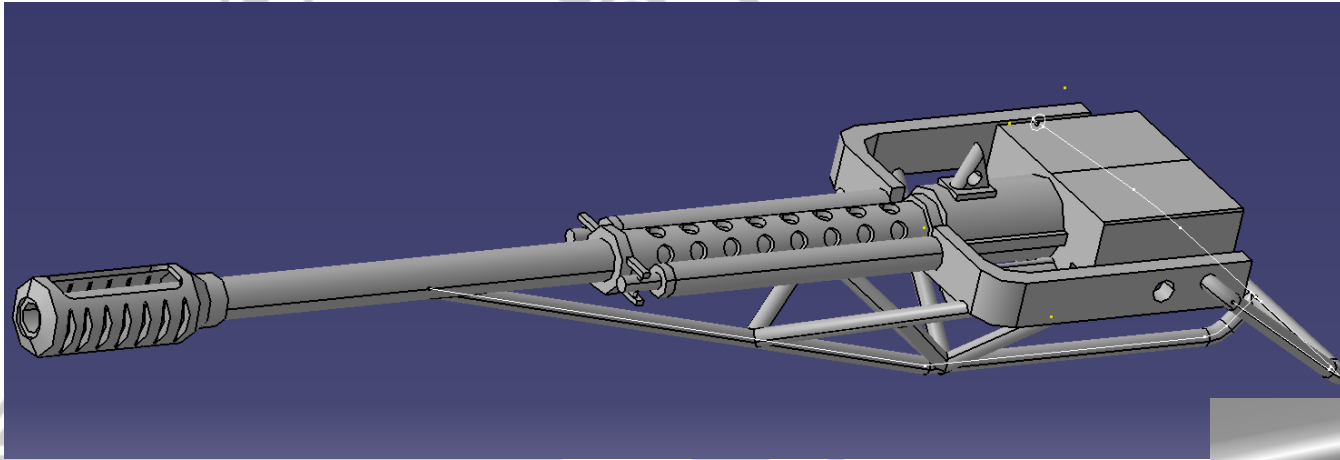
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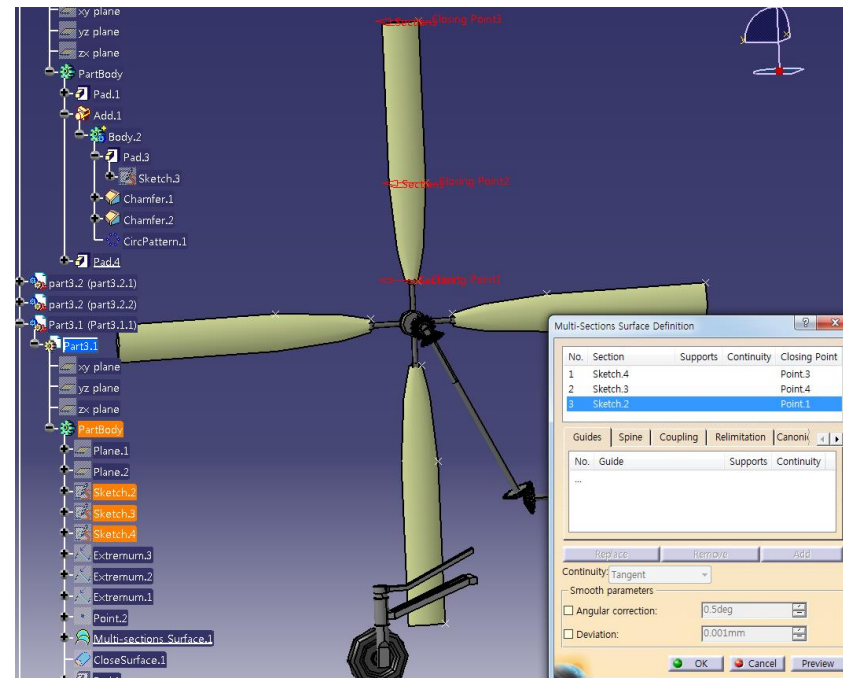
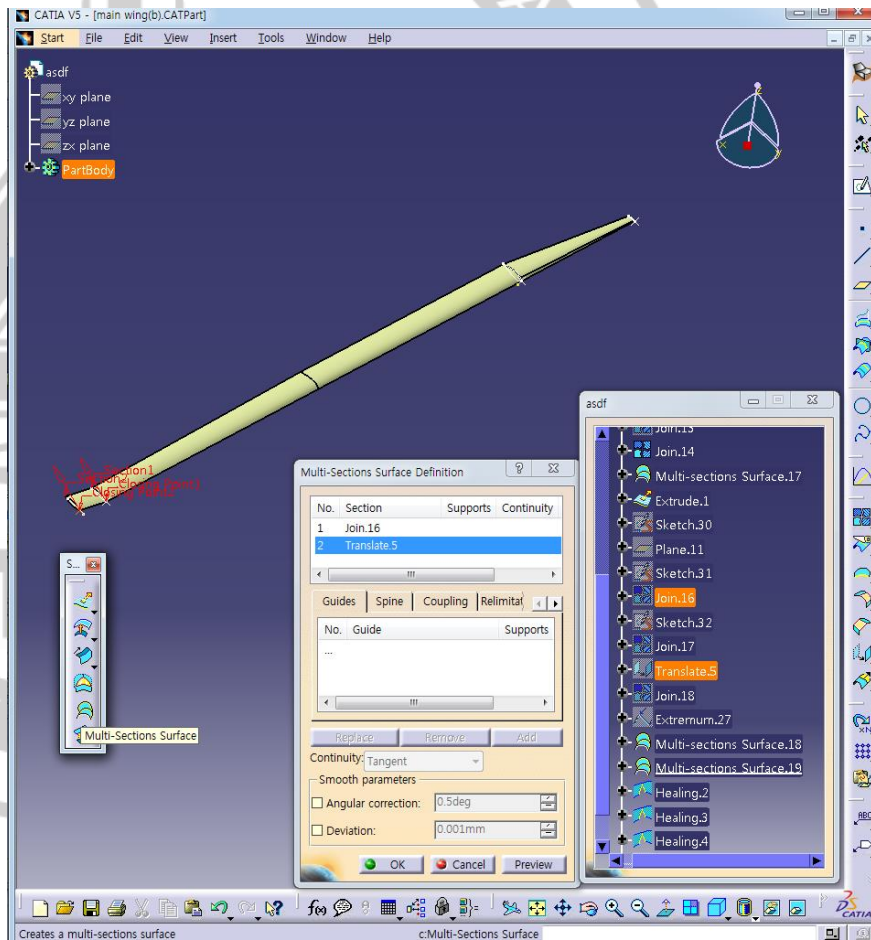
Engine Blade



Weapons

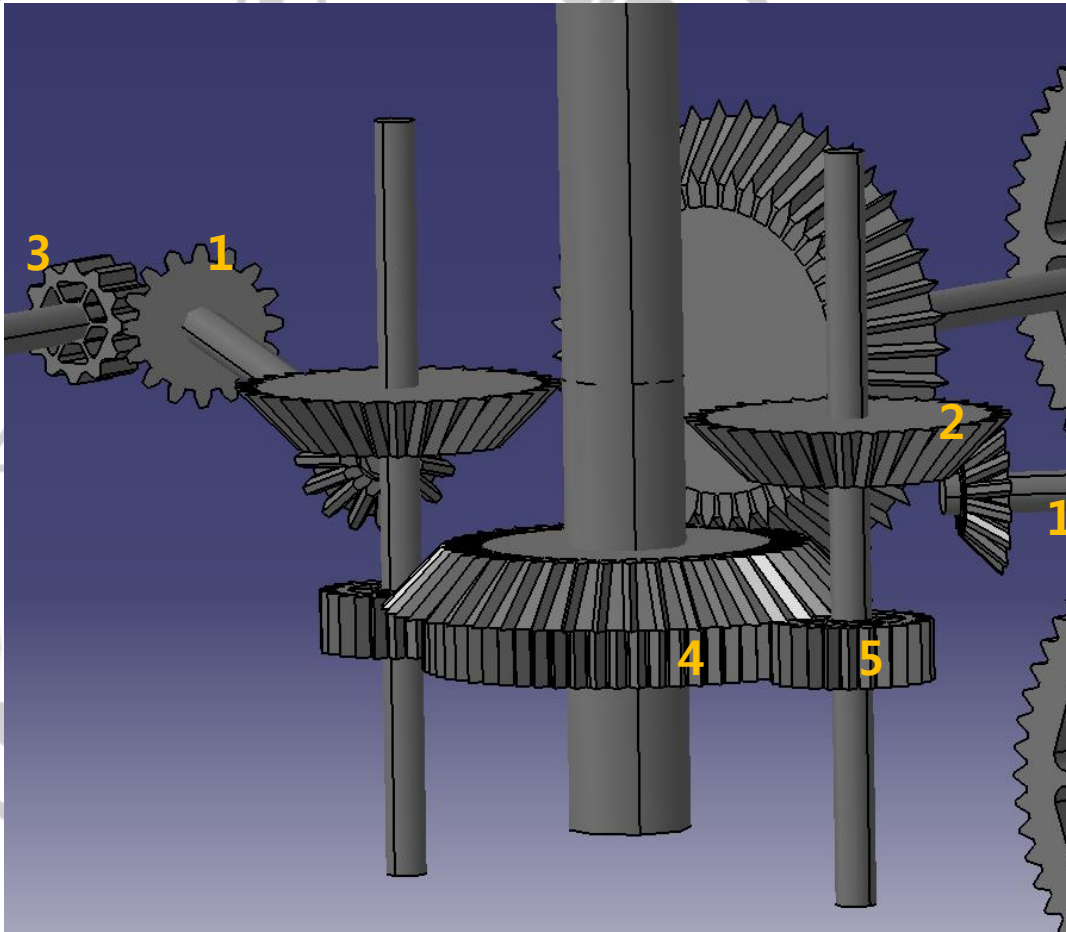


Wing(Main & Tail)



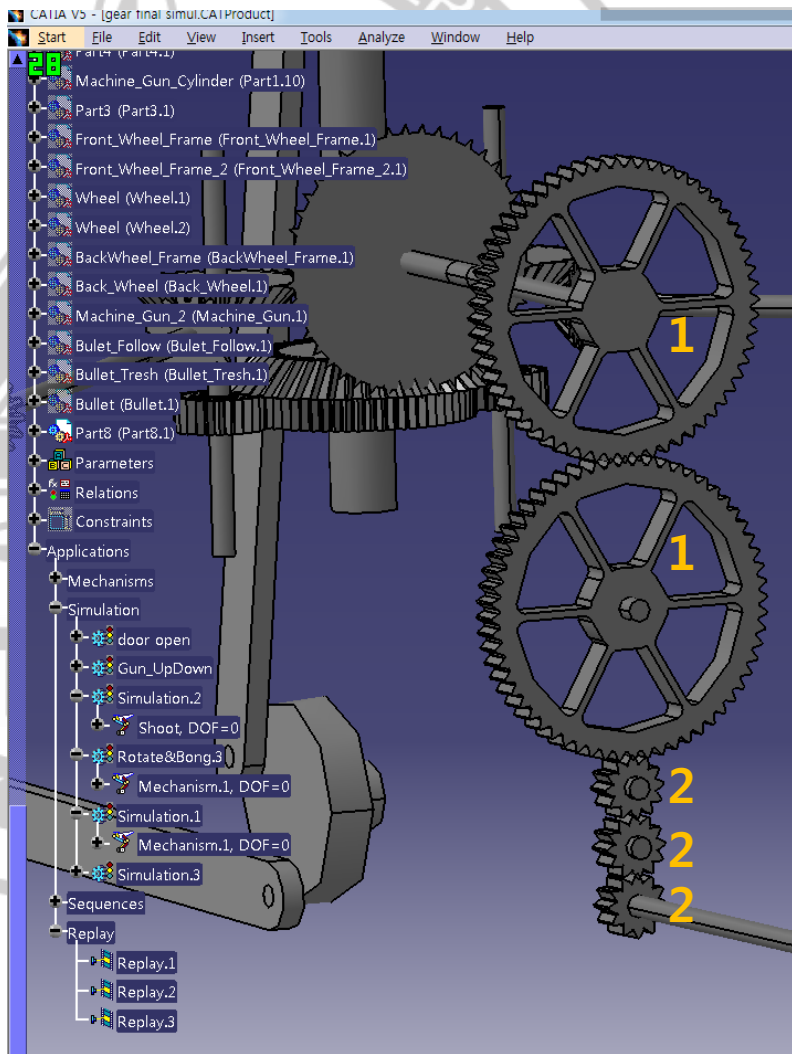
- Main wing은 3개의 Multi section, 1개의 Extrude
- Tail wing은 1개의 Multi section 으로 모델링 함

Gear Box



	기어 종류	반지름 (R)mm	톱니 수 (N)	1개당 각도(degree)	톱니 수/반지름(N/R)
1	Bevel 4.3	4	16	22.5	4
2	Bevel 4.2	8	32	11.25	4
3	Engine flat	3	12	30	4
4	Flat 4.4	10	60	12	6
5	Flat 4.5	4	24	15	6
	Tailgear 1 Tailgear 2	13.25	60	6	4
	Tailgear 3 Tailgear 4	2.65	12	30	4

Gear Box

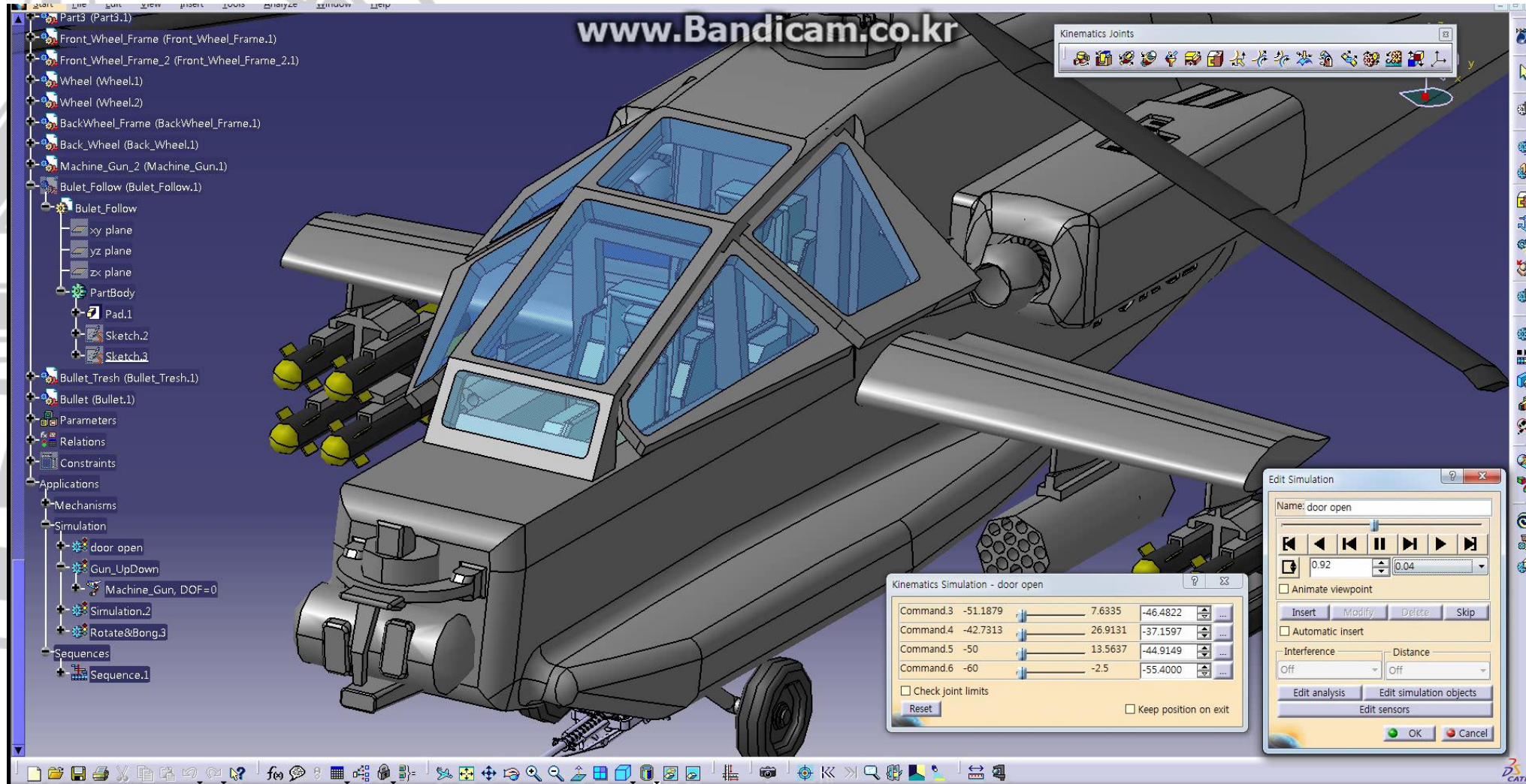


	기어 종류	반지름 (R)mm	톱니 수 (N)	1개당 각도(degree)	톱니 수/반지름(N/R)
	Bevel 4.3	4	16	22.5	4
	Bevel 4.2	8	32	11.25	4
	Flat 4.5	3	12	30	4
	Flat 4.4	10	60	12	6
	Engine flat	4	24	15	6
1	Tailgear 1 Tailgear 2	13.25	60	6	4
2	Tailgear 3 Tailgear 4	2.65	12	30	4



Kinematics

문 여닫기



헬리콥터의 상승원리



피치가 크면 상승



피치가 작으면 하강



전방경사

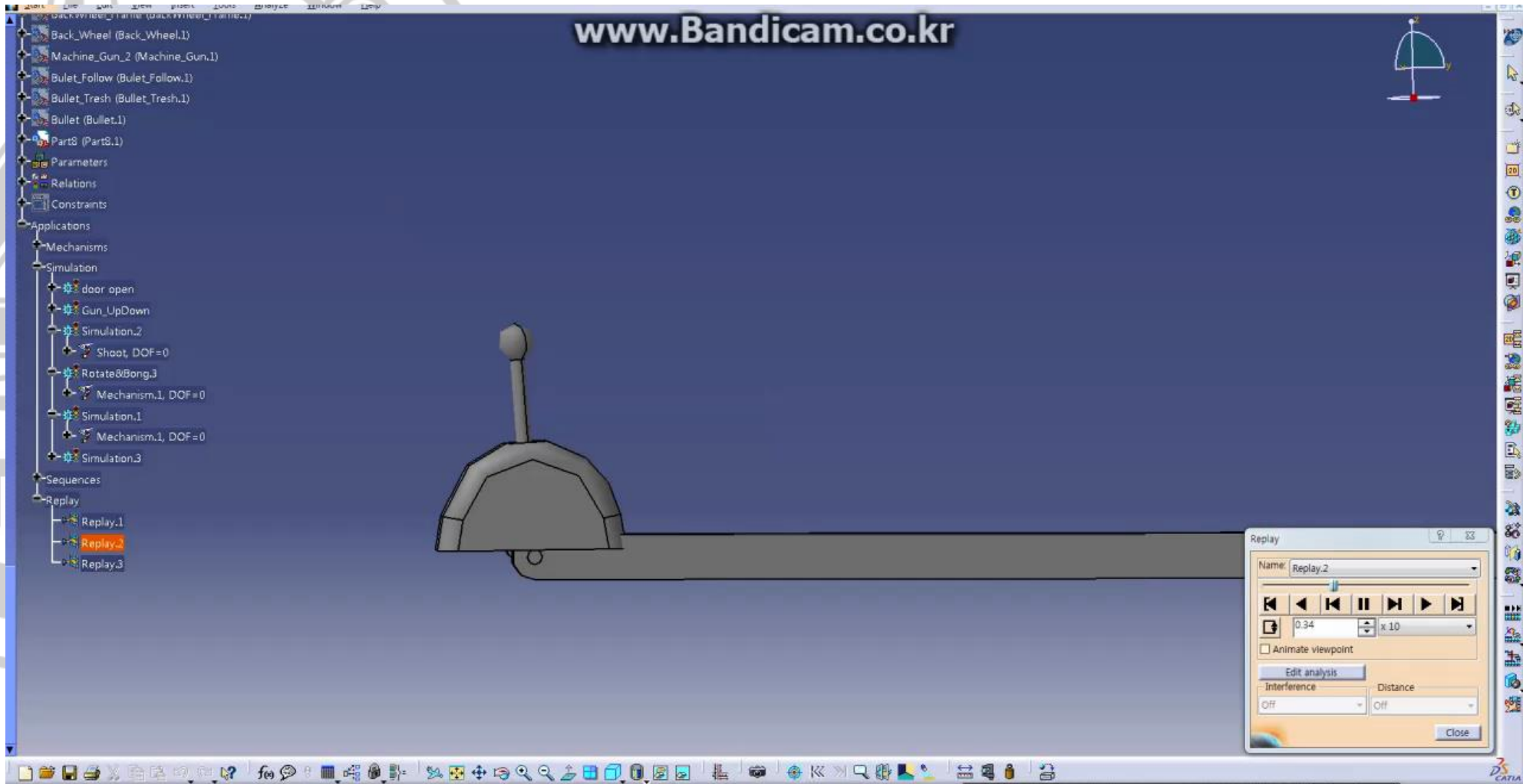


피치를 크게하면 양력증가

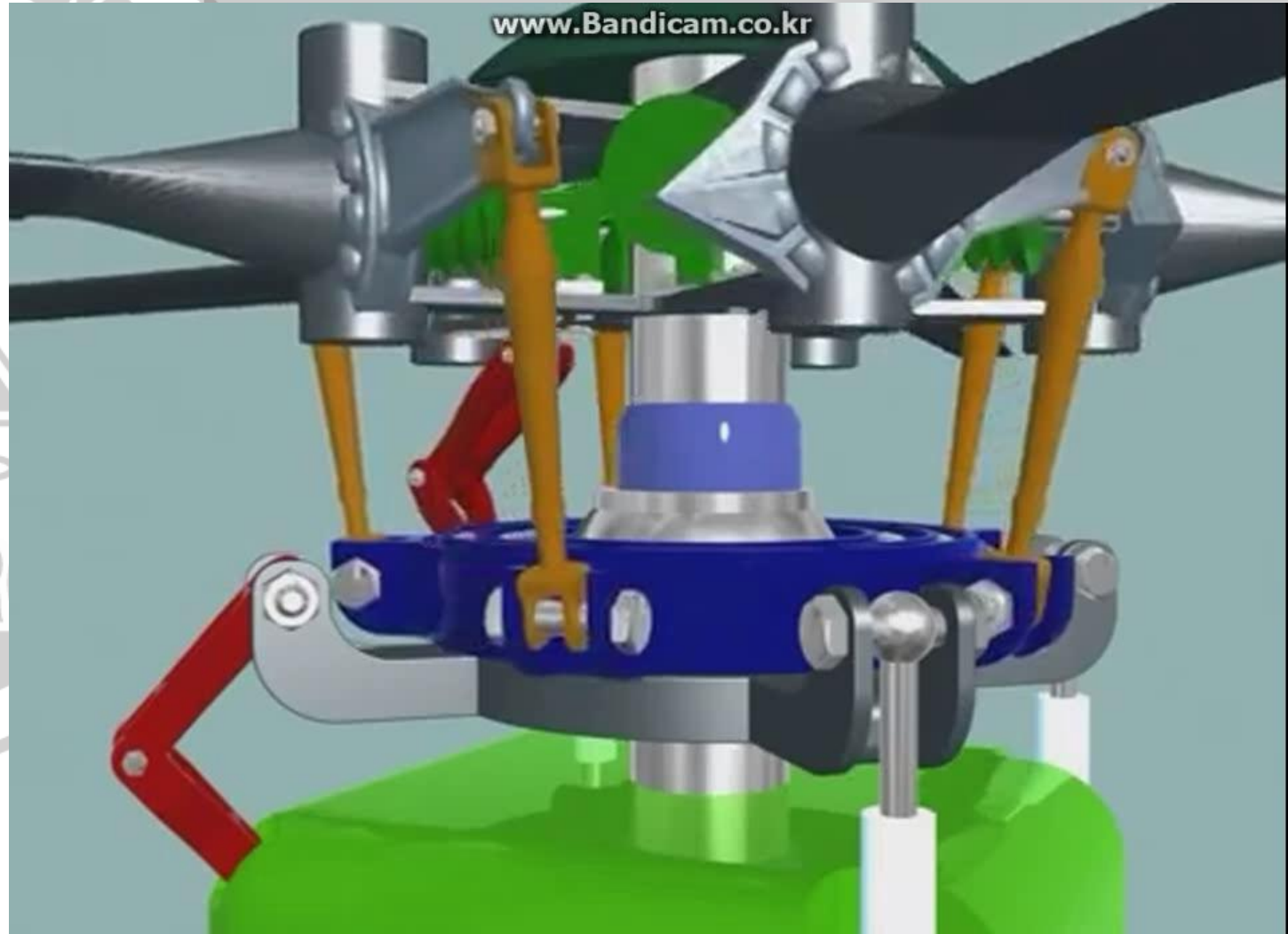


피치를 작게하면 양력감가

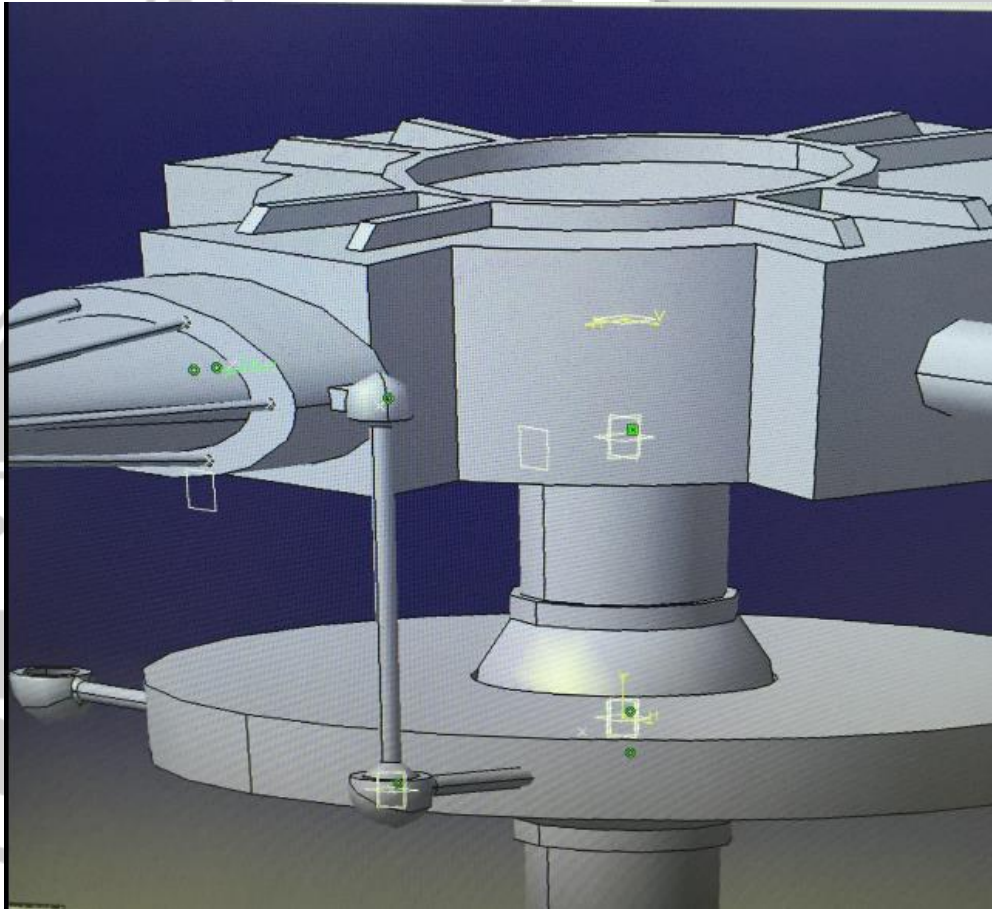
조종간 + 날개 각도



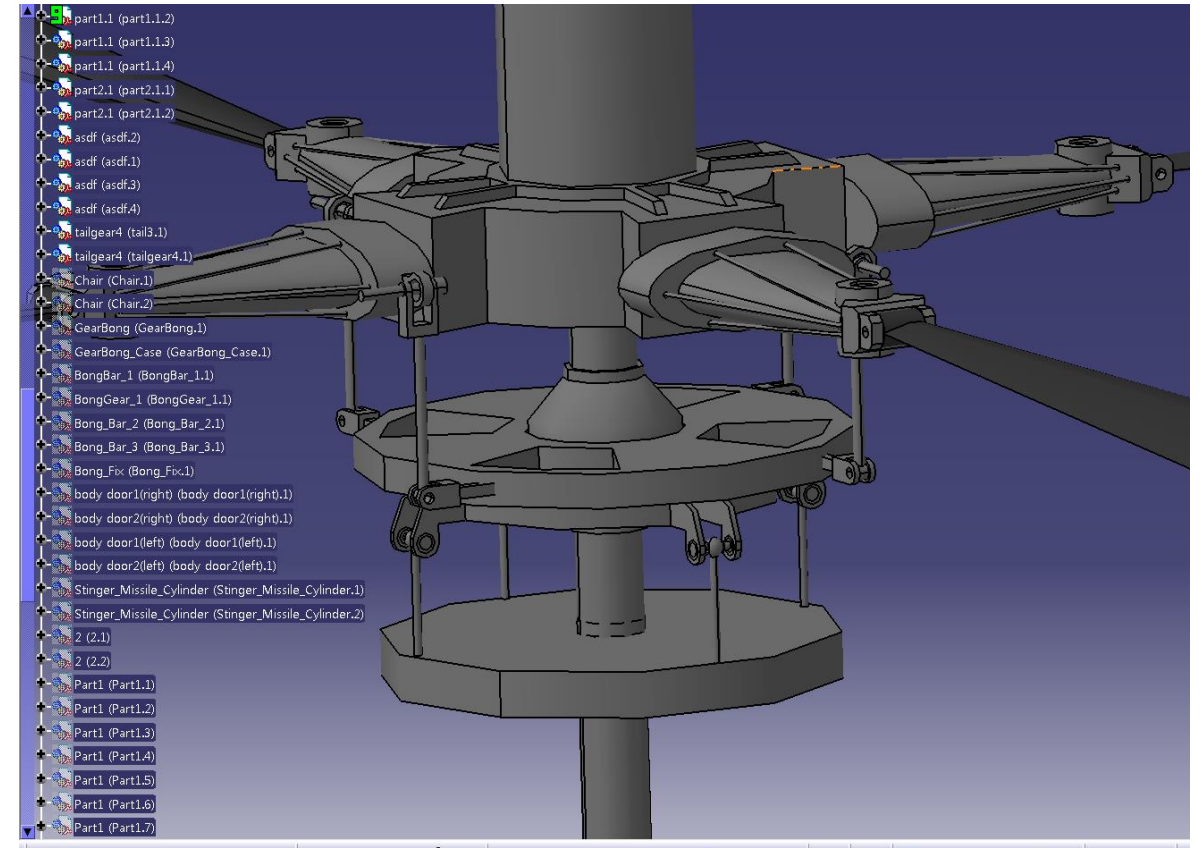
DOF...



DOF...

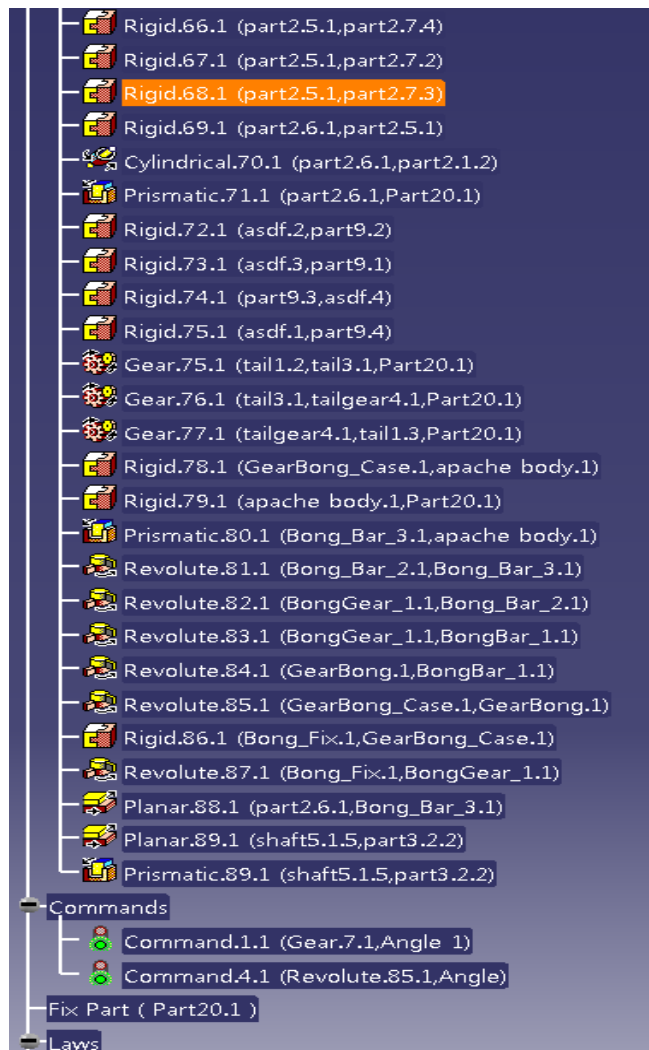
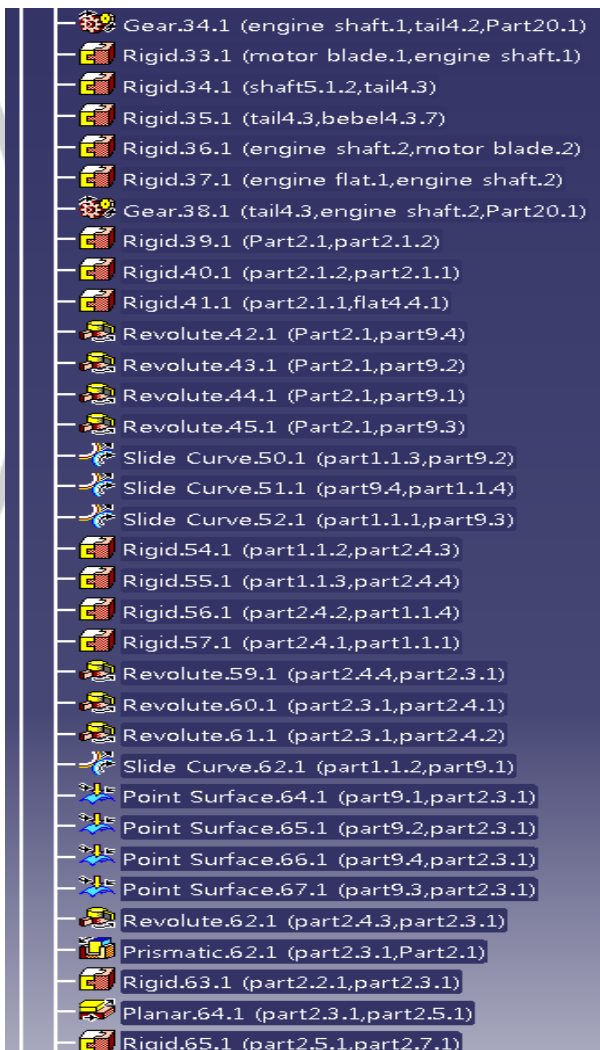
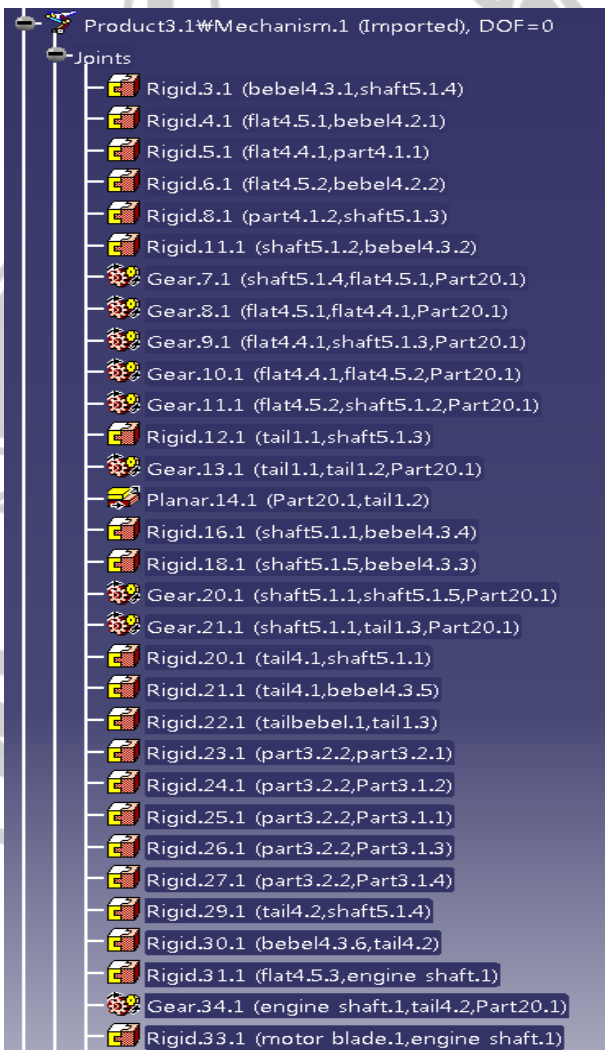


Before

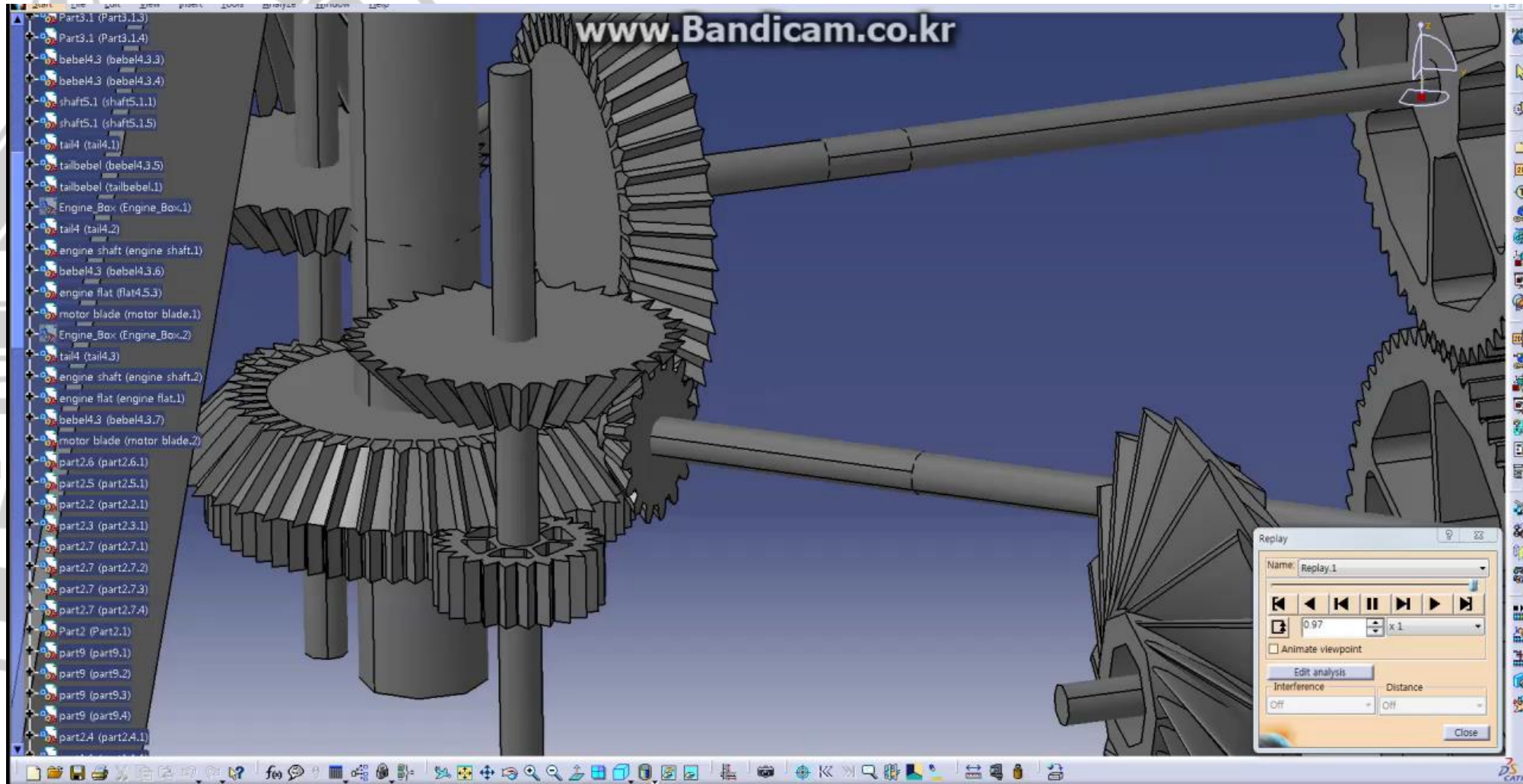


After

기어박스의 Joint들



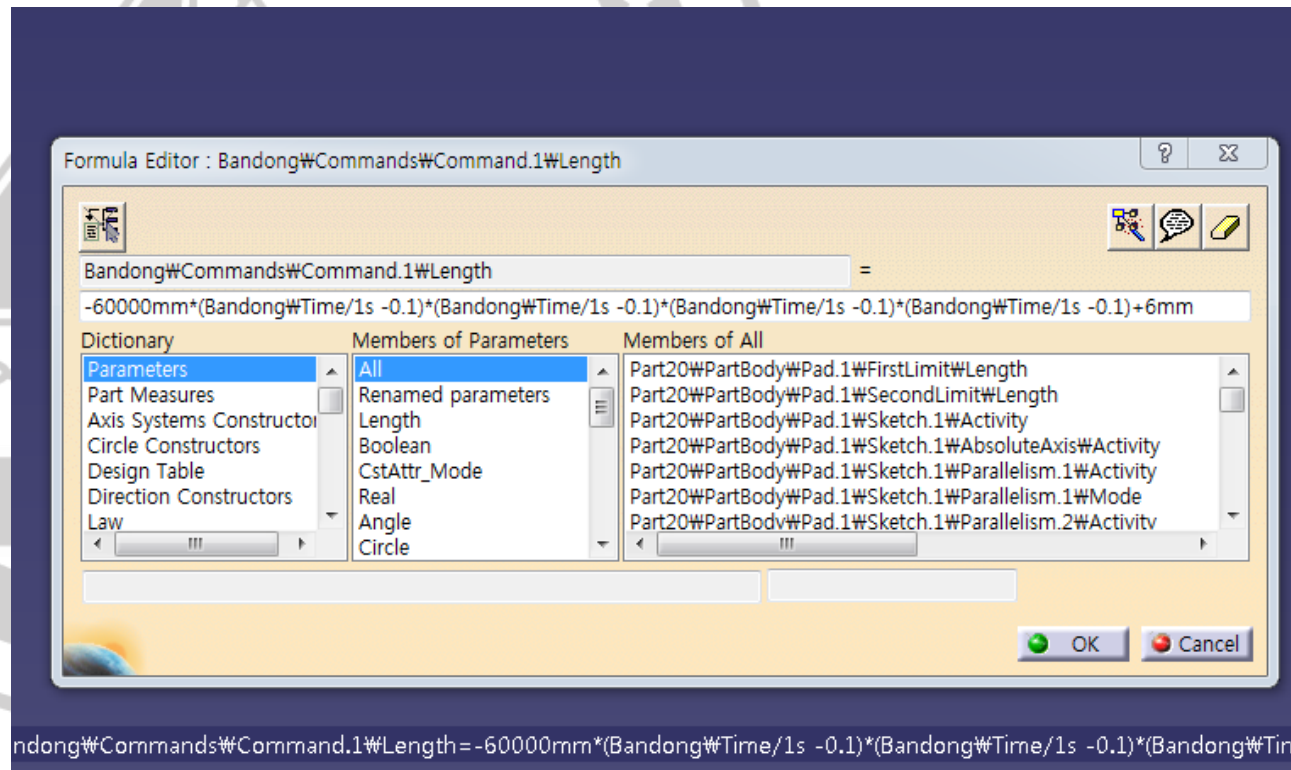
기어박스 동영상



기어박스 + 조종간 동영상



Formula 활용



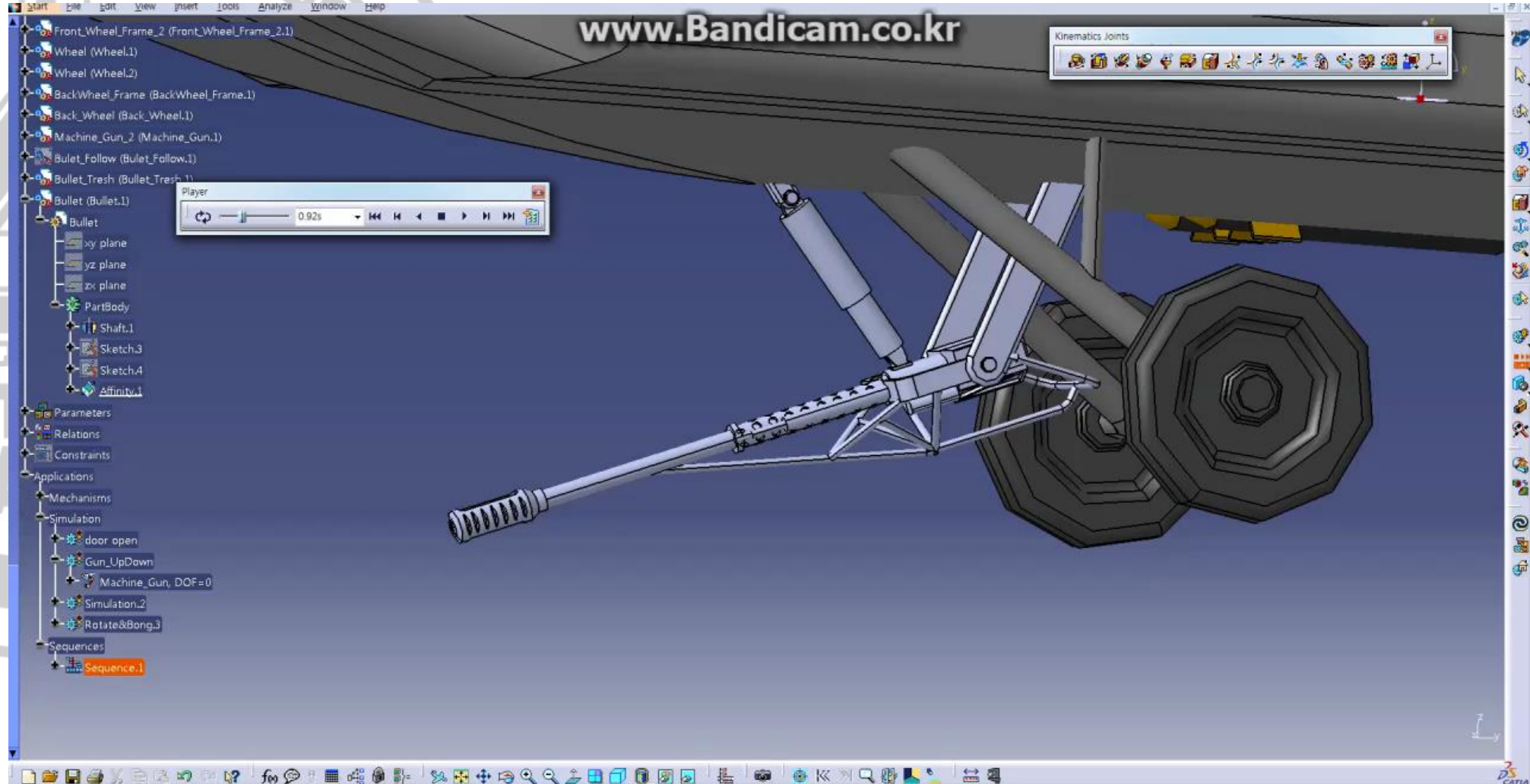
점점 느려지는 slide운동 표현

Length를 time에 대한

4차방정식으로 나타냄

$$L = -60000 * T^4 + 6$$

기관총

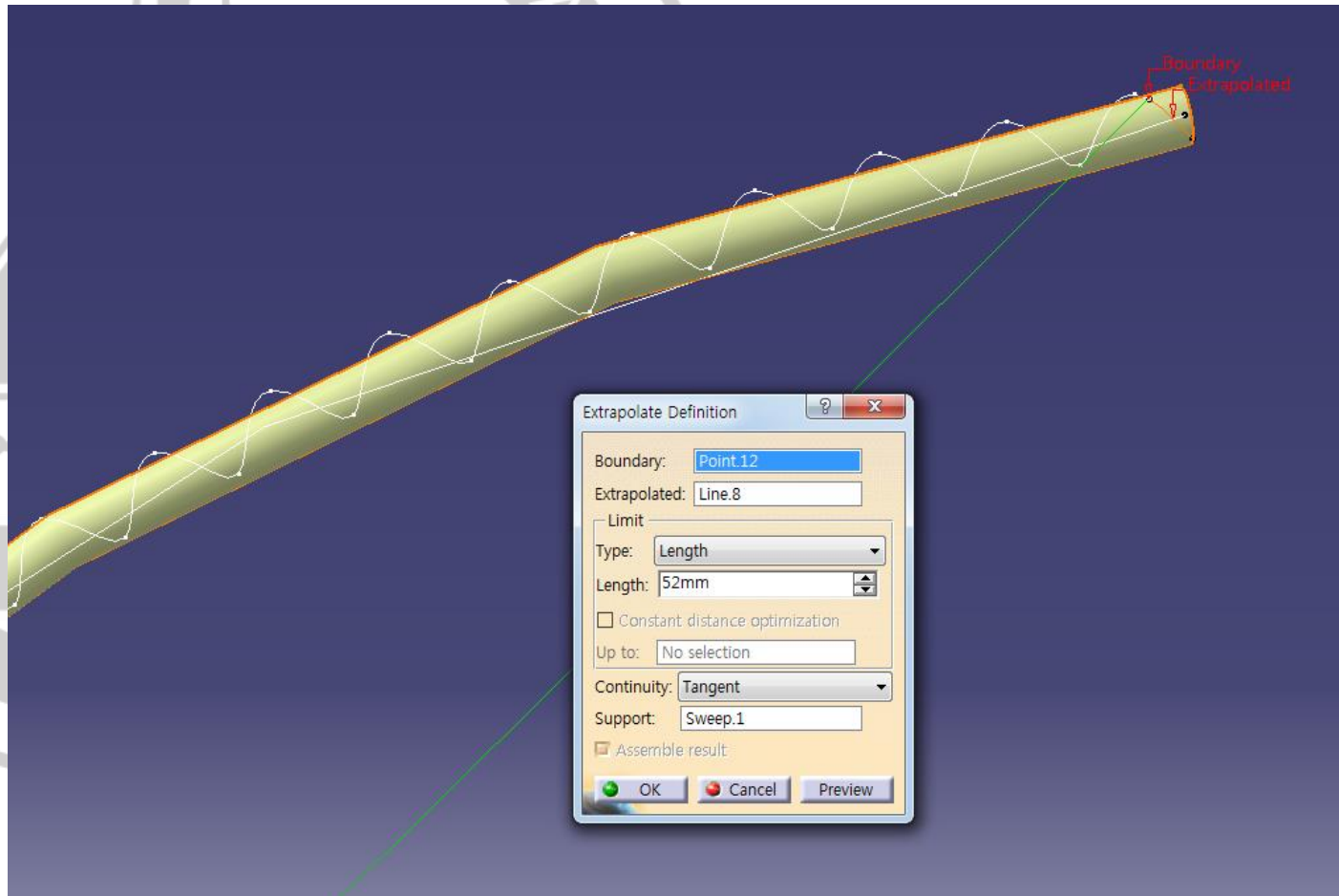


Extrapolate 활용

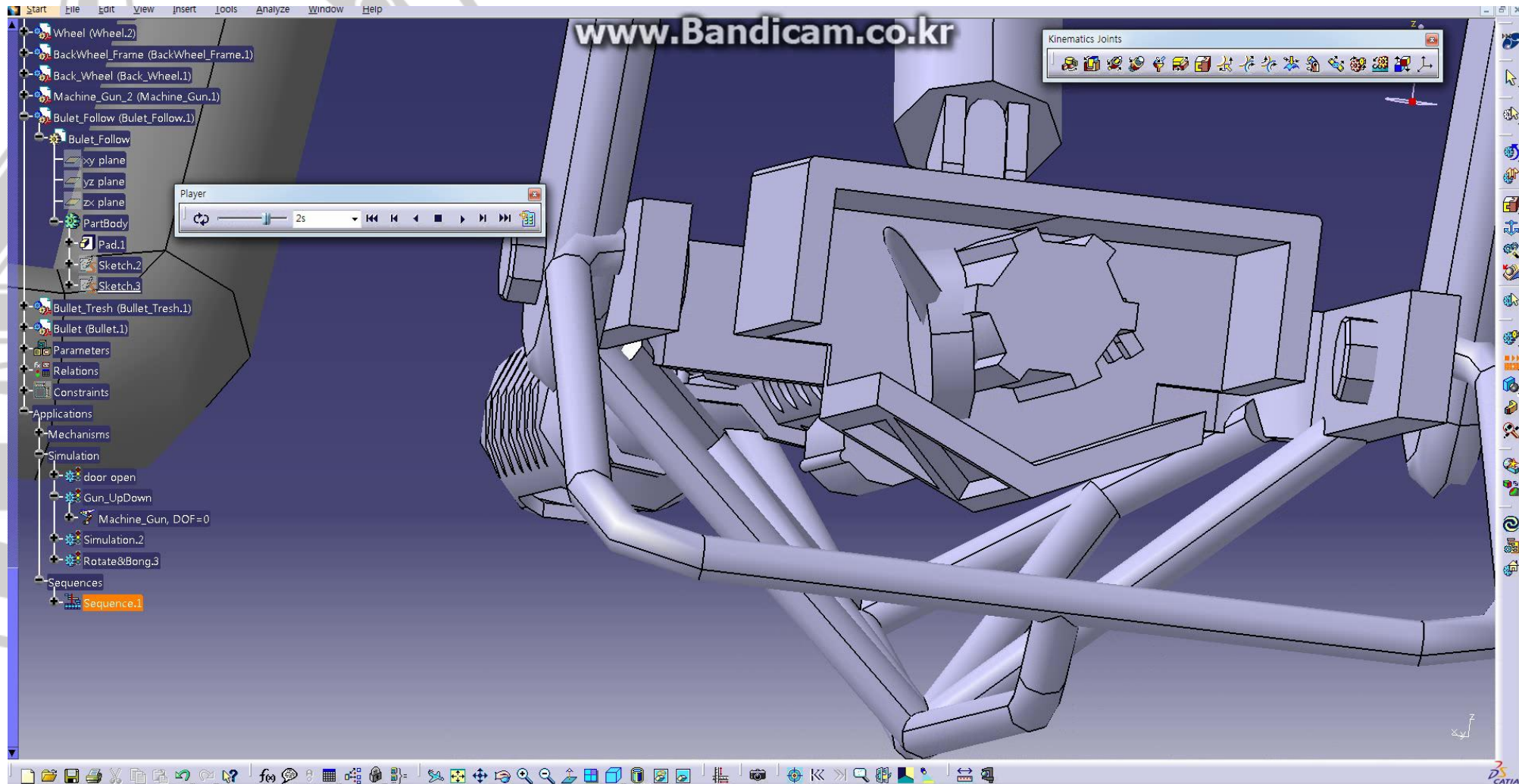
Extrapolate를 활용하여

Curve위의 Helix만들기

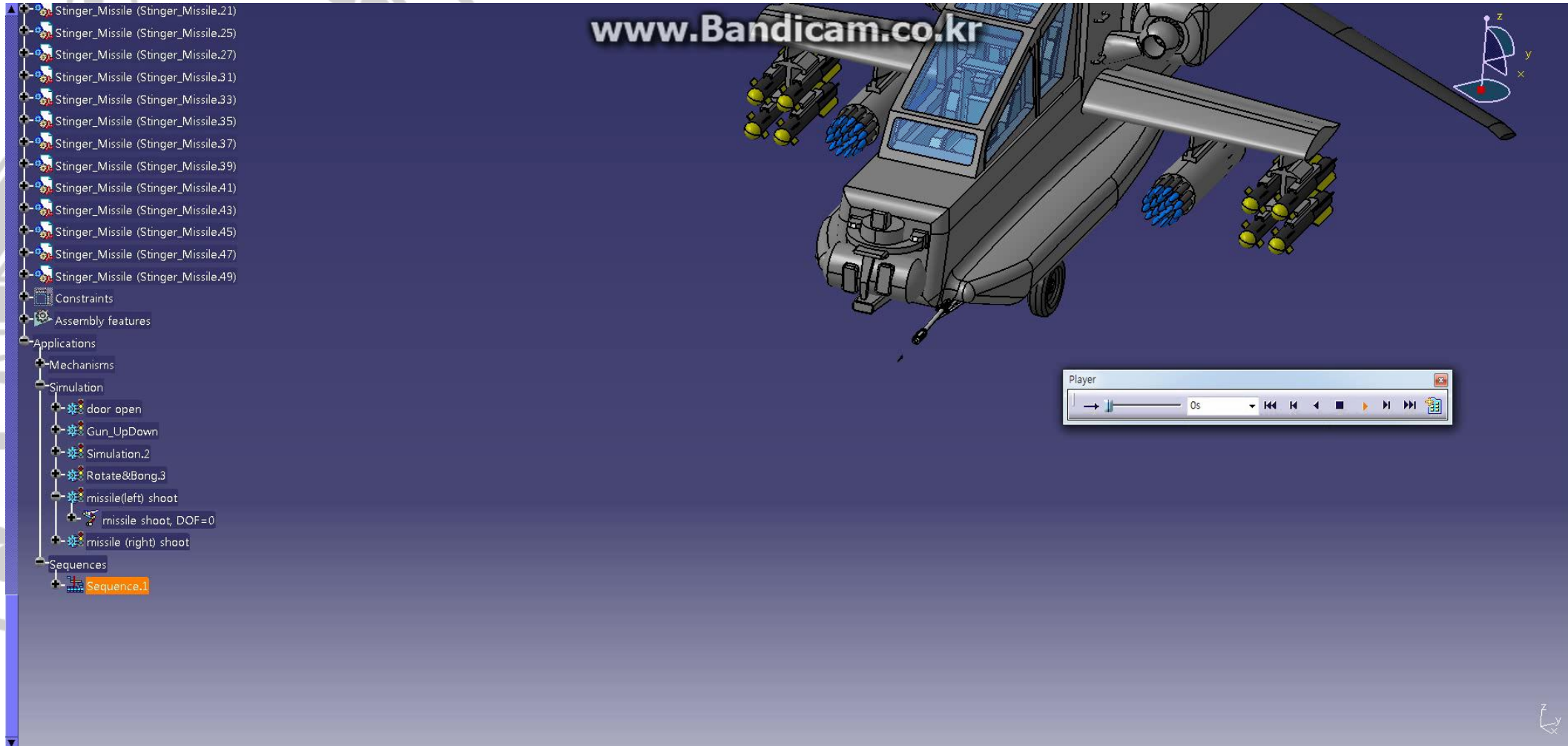
탄피 표현 시도- 실패



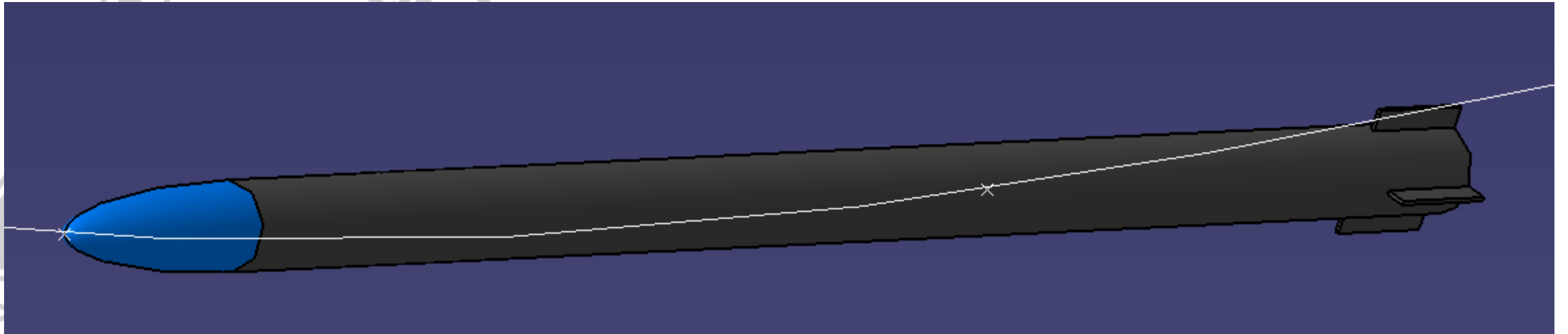
기관총-탄피



미사일



미사일



2개의 Point-Curve Joint – 회전 자유도 발생



1개의 Planar Joint로 회전 자유도 상쇄

Total Sequence

www.Bandicam.co.kr

The screenshot displays a software interface with a sequence tree on the left and a replay control panel on the right. The sequence tree is organized as follows:

- Product3.1WRoter (Imported), DOF=0
- Product3.1Wdoor open (Imported), DOF=0
- Product3.1WMachine_Gun (Imported), DOF=0
- Product3.1WShoot (Imported), DOF=0
- Product3.1WBandong (Imported), DOF=0
- Product3.1Wmissile shoot (Imported), DOF=0
- Product3.1Wmissile shoot(right) (Imported), DOF=0
- Simulation
 - Door Open
 - Gun_UpDown
 - Gun_Shoot
 - Rotate_Only
 - Rotate & Bong
 - Product3.1WRoter (Imported), DOF=0
 - Rotate_2Only
 - Product3.1WRoter (Imported), DOF=0
 - Take_Off
 - Take_Off, DOF=0
 - Missile_Left
 - Missile_Right
- Sequences
 - Sequence.1
- Replay
 - Replay.1
 - Replay.2

The replay control panel on the right is titled "Replay" and includes the following controls:

- Name: Replay.2
- Timeline with playback controls (stop, previous, play, next, end)
- Time display: 0.00 x 2
- Checkbox: Animate viewpoint
- Button: Edit analysis
- Interference: Off
- Distance: Off
- Button: Close



감사합니다
