

# 島山 안창호함

미래자동차공학과 CAD 팀프로젝트

팀명: 安多多詩

2018016117 장현호  
2018016180 채희욱  
2018016235 최호준



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# 주제 선정 & 역할 분담

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2) 주요 목표

3) 역할 분담

# 1) 선정배경

북한의 미사일 도발



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한미 미사일 지침 종료



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SLBM 탑재 안창호함



## 2) 주요 목표

### ① 전체적인 설계

- 안창호 잠수함(SS083)을 모델로 삼아 외형은 실제 크기를 참조
- 내부에 추가적으로 SLBM(잠수함발사탄도미사일)을 장착

### ② 세부적인 설계

- 잠수함 크기 고려 → 내부 장착 미사일과 함교탑의 알맞은 치수 선정
- 무거운 중량의 미사일을 효과적으로 지지하기 위한 받침대 및 움직임 설계

### ③ 최종 목표

- 선박 후미의 프로펠러를 통해 잠수함의 움직임 표현
- 다양한 Joint와 Kinematic을 활용해 실제 SLBM의 발사 과정 구현

### 3) 역할 분담

#### 장현호

- 정보 수집
- Part Design (Propeller, Two-Ternary Link, Body-Door 등)
- DMU Kinematics (To work SLBM)
- 시뮬레이션 조작 및 SEQUENCE 담당

#### 채희욱

- 정보 수집 및 자료 정리
- Part Design (SLBM, Snorkel mast (잠망경 등))
- DMU Fitting (To work SLBM)
- PPT 및 영상 제작

#### 최호준

- Part Design (Submarine Body, Conning tower (함교탑 등))
- DMU Kinematics (To work SLBM, Rotating Propeller)
- 시뮬레이션 제작

# Part Design

The background of the slide features a photograph of a submarine on the surface of the ocean under a cloudy sky. A large, semi-transparent gear graphic is overlaid on the left side of the image, partially obscuring the sky and the submarine's hull.

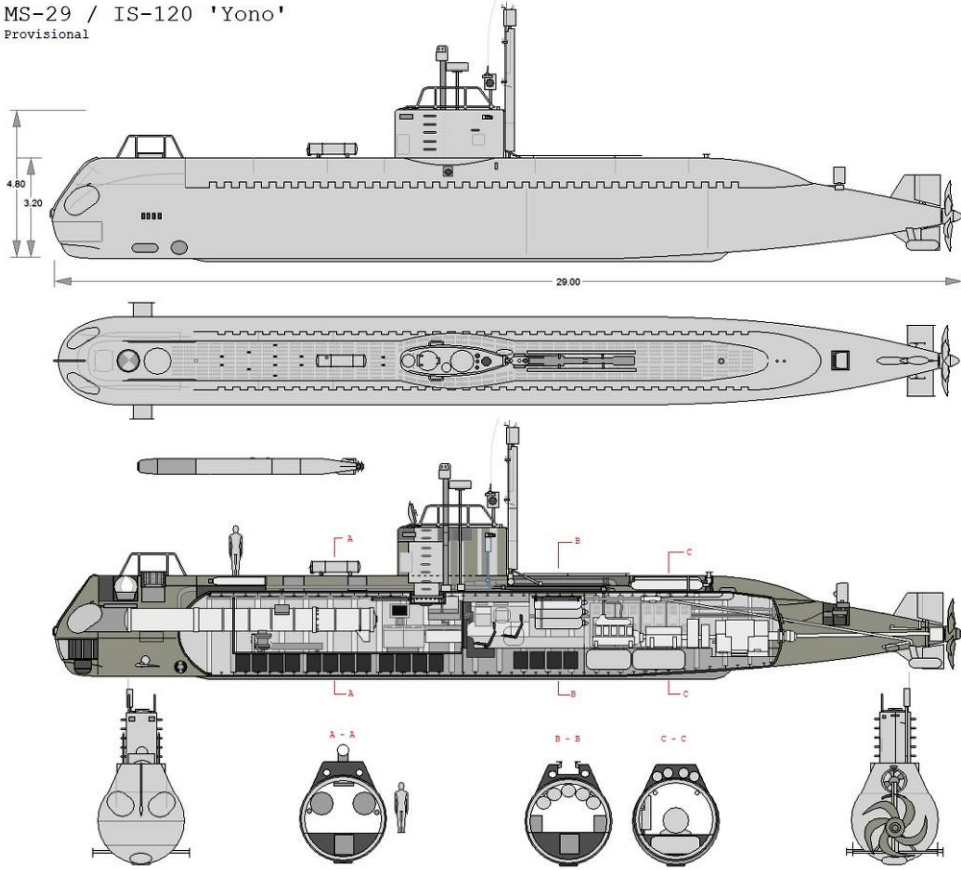
**1) Drawing**

**2) Part Body**

# 1) Drawing

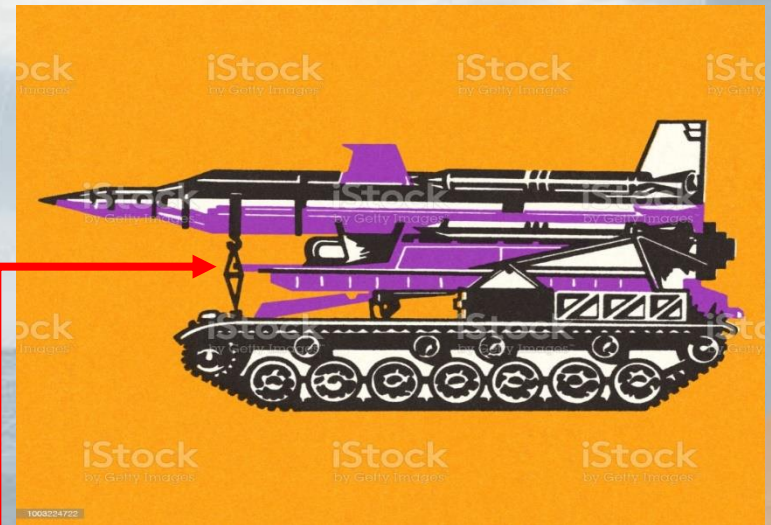
## \* 참고 자료

MS-29 / IS-120 'Yono'  
Provisional



SLBM 탑재 잠수함의 경우,  
단면도가 공개되지 않음

→ 시중에 공개된 MS-29 (정확도 80%)  
단면도를 바탕으로 비율을 맞춰 제작

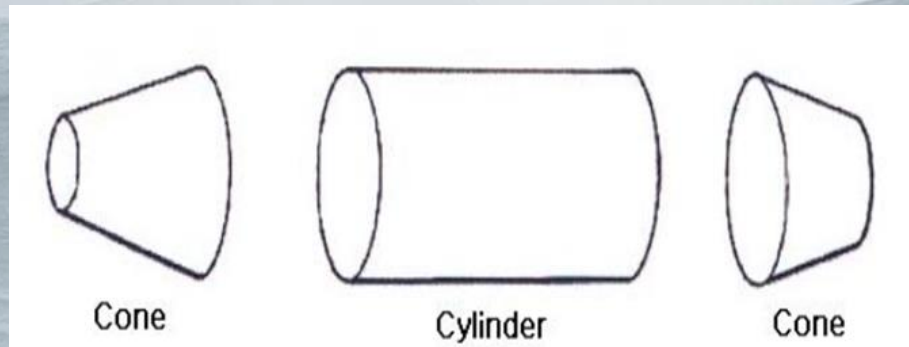
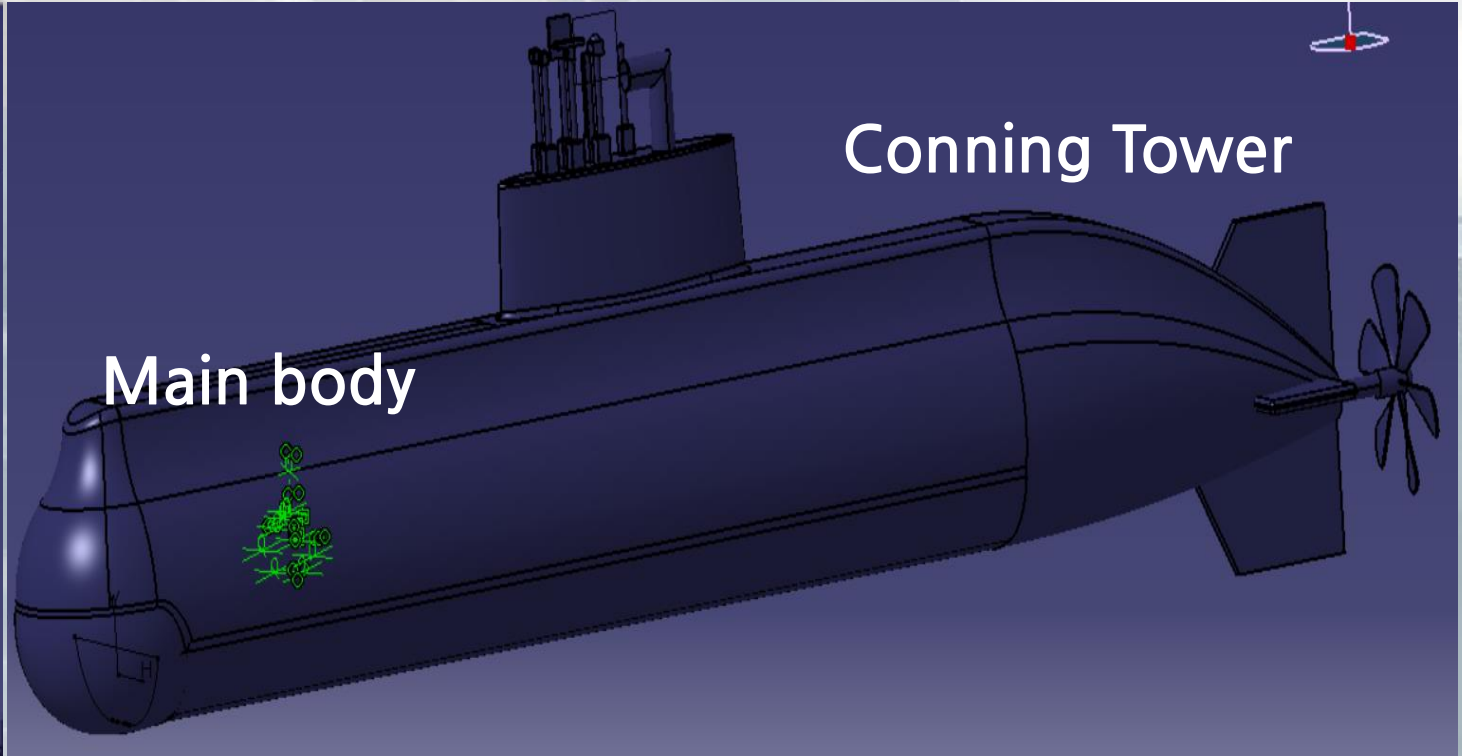
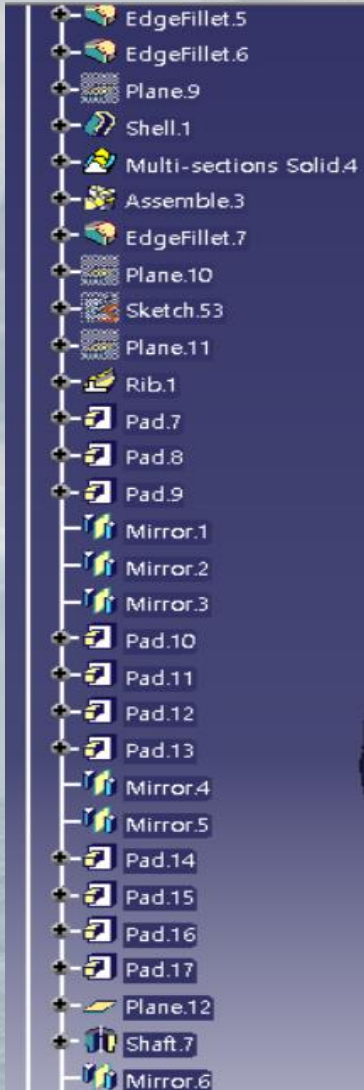


지대공 미사일 받침대에서 착안  
->Truss 구조를 활용하여 받침대 제작



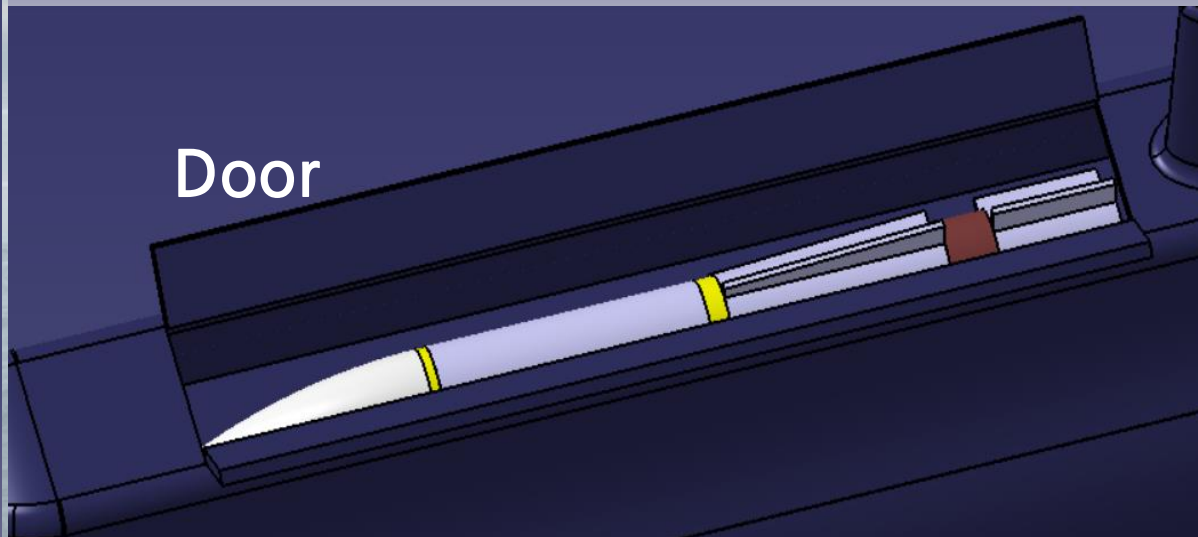
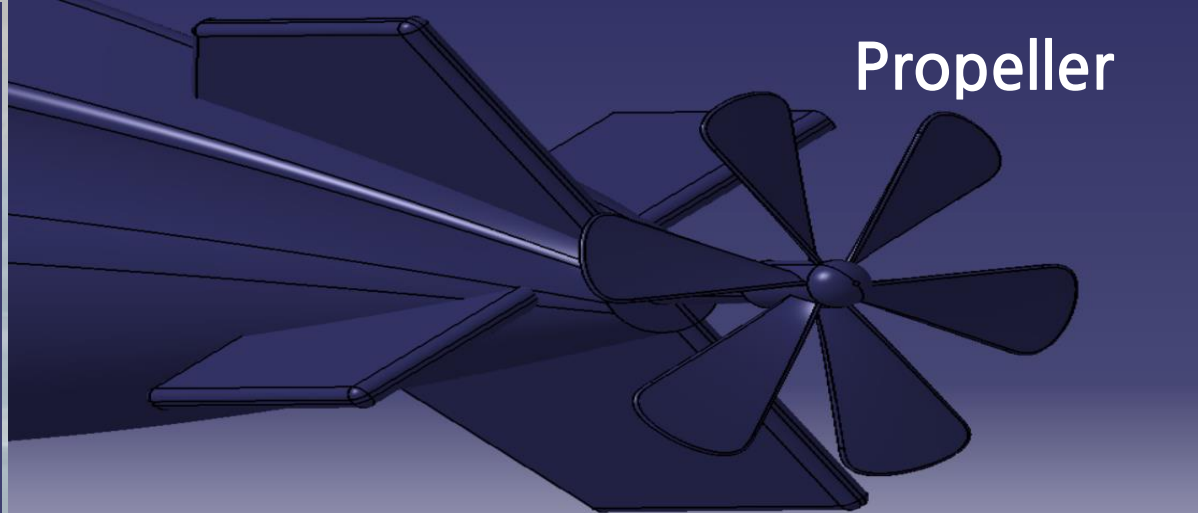
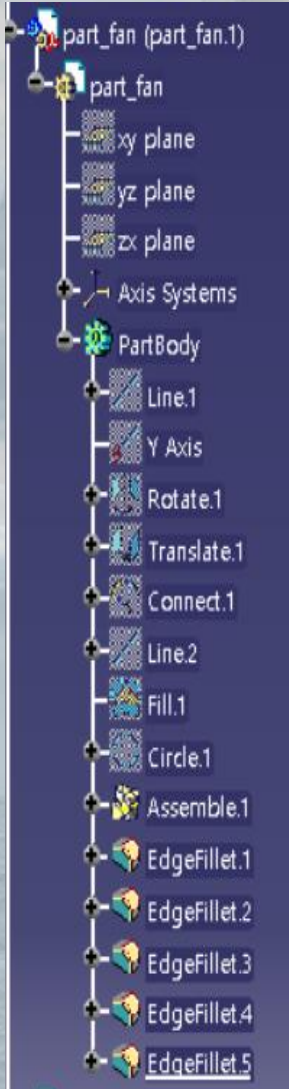
## 2) Part body

### ① Main Body



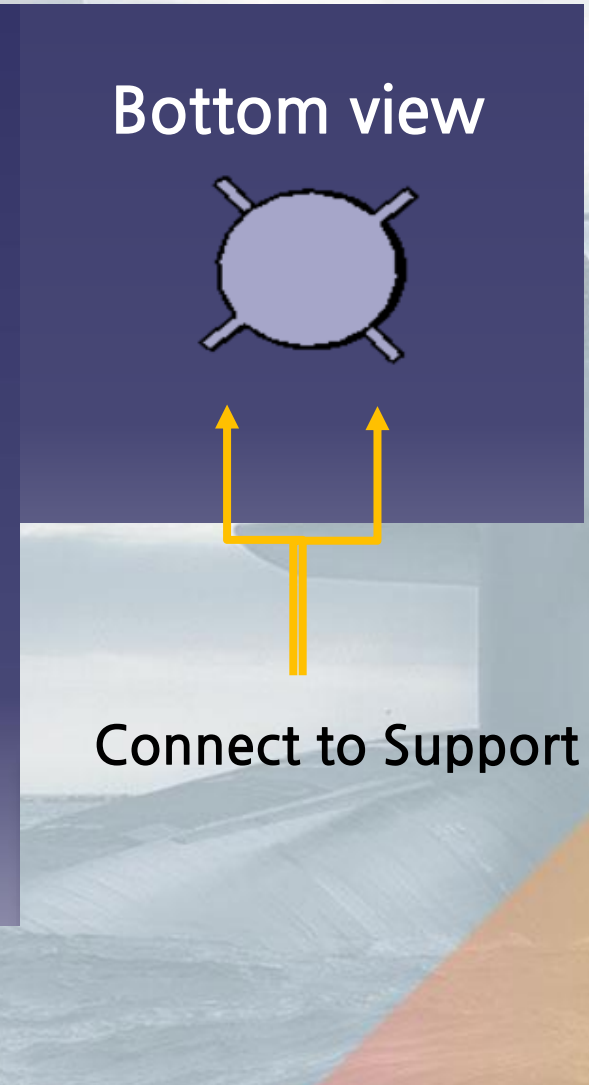
## 2) Part body

### ① Main Body



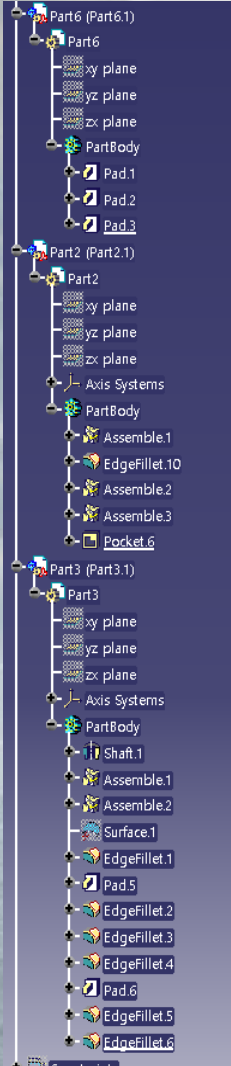
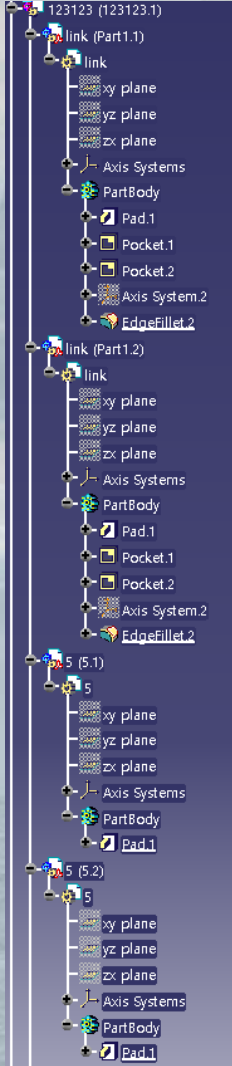
## 2) Part body

### ② SLBM - Missile Body



# 2) Part body

## ② SLBM - Missile Pedestal (받침대)



# DMU Kinematics

The background of the slide features a photograph of a submarine's conning tower and upper hull sections above the ocean's surface. The sky is filled with soft, white clouds. A large, semi-transparent gear graphic is overlaid on the left side of the image, with its teeth pointing towards the center. The gear is rendered in a light blue and grey color, creating a technical or mechanical aesthetic.

**1) Door & Propeller**

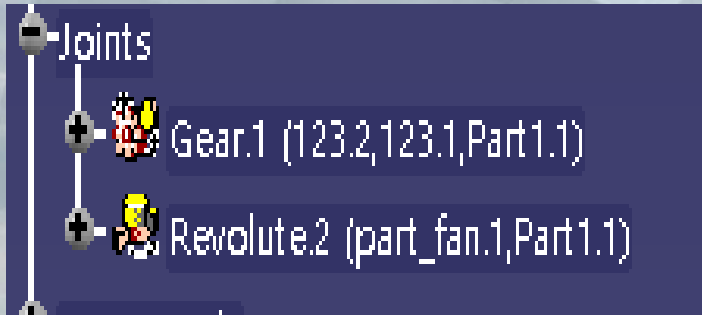
**2) How to work SLBM**

# DMU Kinematics

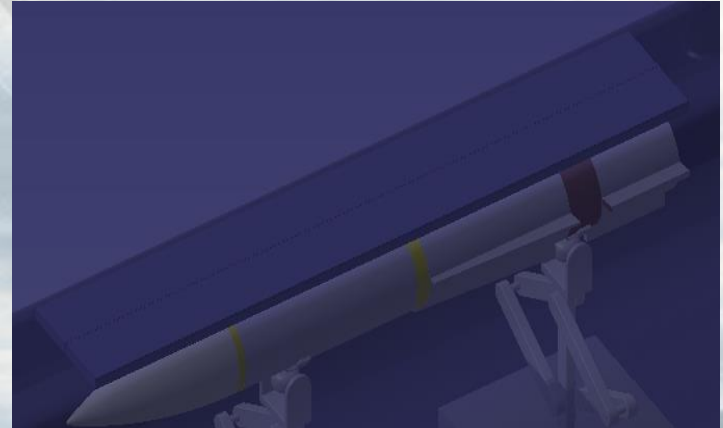
## 1) Door & Propeller Kinematics

Door - Gear Joint

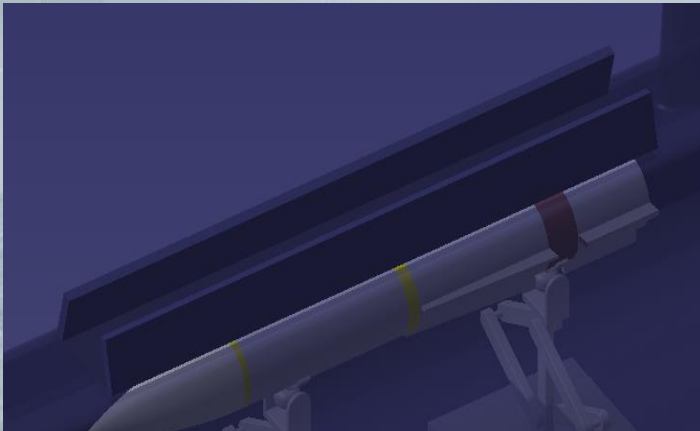
Propeller - Revolute Joint



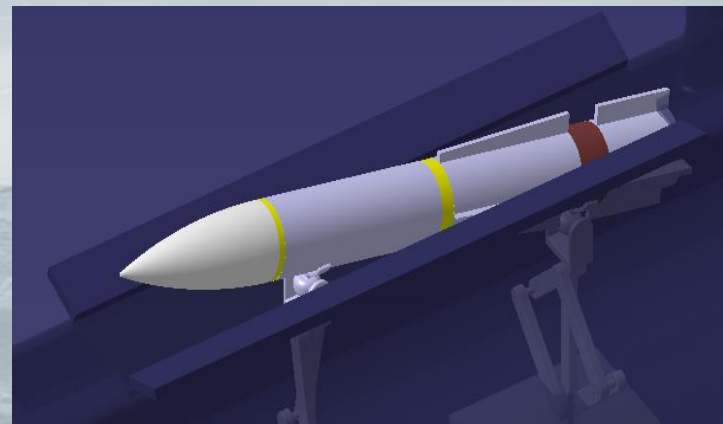
①



②



③

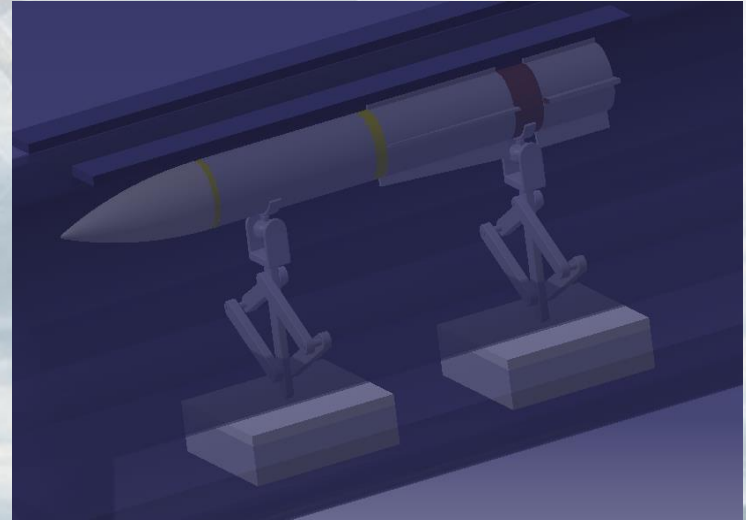


# DMU Kinematics

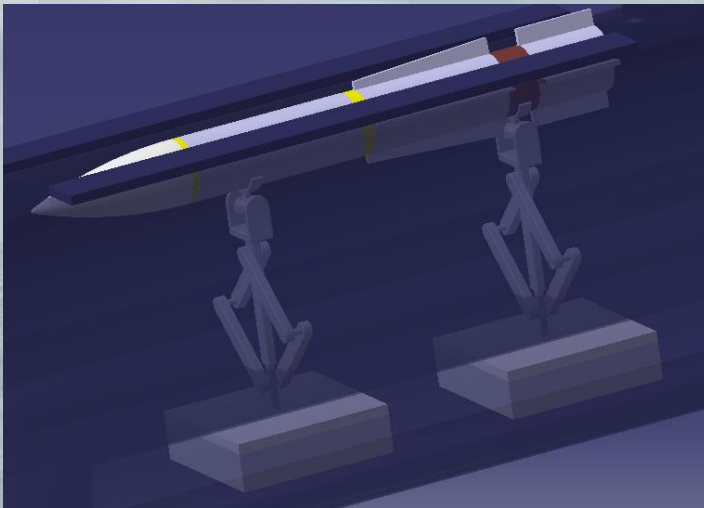
## 1) SLBM: 전체적 Kinematic 작동 순서



①



②



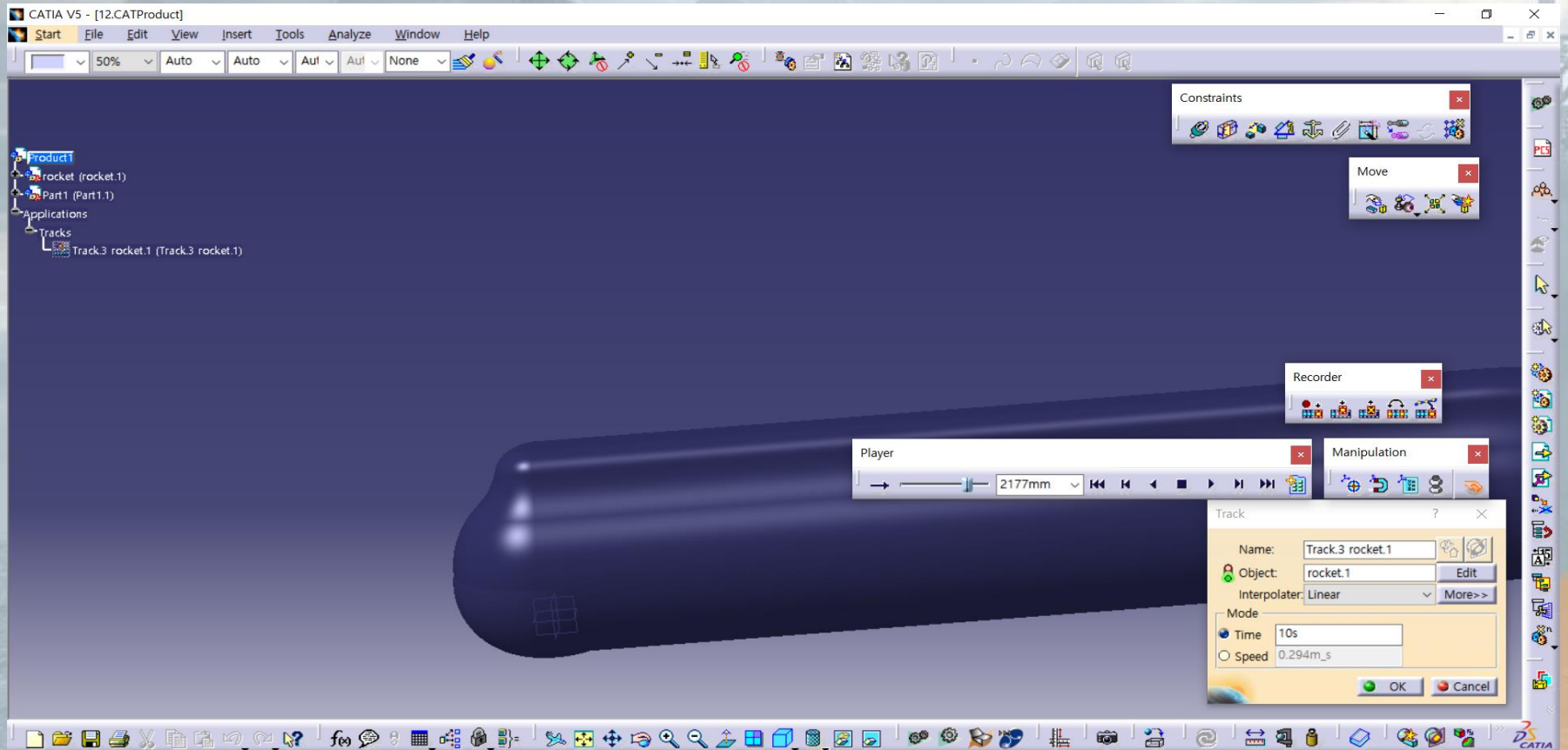
③



# DMU Fitting

## 1) SLBM Launching

Used DMU Fitting





# Sequence

Edit Sequence

Edit Action | Edit Analysis

Action in session

- Simulation.1
- Simulation.6
- Simulation.2
- Simulation.3
- Simulation.4
- Sequence.2

Action in Sequence

Step	Action	Duration (s)	Delay (s)
1	Simulation.1	20	0
1	Simulation.6	10	7
1	Simulation.2	10	7

Move Up | Merge Up

Move Down | Merge Down

Action duration (s) 20 | Reset duration | Action delay (s) 0

Action add mode

- Create last step and add
- Add in last step
- Iterative create last step and add

Highlight the simulated action(s)

OK | Cancel

Player

0s

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# 한계 & 개선 방향

- 1) 잠수함 내부 구획과 디테일X
- 2) Truss에서 DOF Undefined=12
- 3) 비대면 상황 → 각자 저장한 파일 충돌

# 참고 문헌 및 참고 링크

1. 대한민국 잠수함 연맹 신면접 코너 - 잠수함의 건조는 어째서 어려울까?  
([subleague.org](http://subleague.org))

2. "北 단거리 미사일 2발 발사"...안보리 제재 '위반' (2021.03.25/12MBC뉴스)  
<https://youtube.com/watch?v=eifrUtlseqM&feature=share>

3. 일상 속에서 만들어보는 'Truss' 이야기  
[https://m.blog.naver.com/PostView.naver?isHttpsRedirect=true&blogId=cnt\\_reporter&logNo=220712339756](https://m.blog.naver.com/PostView.naver?isHttpsRedirect=true&blogId=cnt_reporter&logNo=220712339756)

4. 연어급 잠수함 단면도, "Yono", IS-120  
<http://www.newdaily.co.kr/site/data/html/2011/01/21/2011012100037.html>





**THANK YOU**