

Tohoku University Formula Team

2021-2022 Student Formula Japan
Boeing Report Meeting 2023/2/16

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Outline

- What is “Student Formula”?
- What is “Tohoku University Formula Team”?
- About us
- Result of 20th Formula Student Japan
- Future plan
- Request for support

What is “Student Formula”?

- To challenge design, fabricate, develop and compete with formula style vehicle by college students
- Dynamic events and Static events
 - Static event = document review
 - Dynamic event = inspection & driving

**Static
event**



**EV vehicle
inspection**

Pass

Driving test

Don't Pass



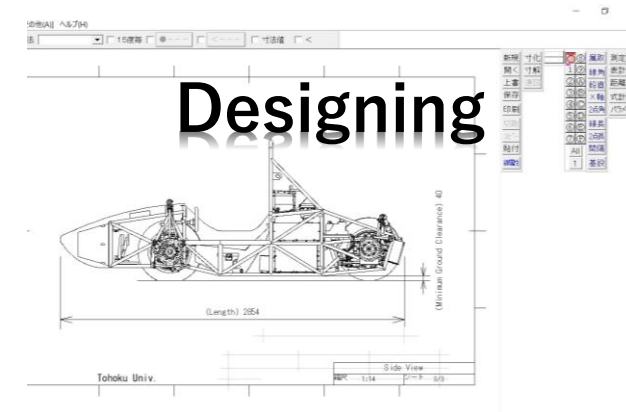
What is “Tohoku University Formula Team”?



We develop Electric Racing Cars.

Whole processes are coordinated by students.

We don't just design and manufacture;
we also do public relations and budget management.



About us

About Team

- 7 students majoring in engineering
- 29 sponsors

They provide financial support as well as parts supplies and safety training.

Pit

Tohoku Univ.
Aobayama Cyampas

We held meeting, PR events,
machine assembly & maintenance,
test run.



History

■ Activity history

- It was established in 2011 and has participated in nine tournaments since 2013.



Activities during the COVID-19 disaster

- On 10/24/2021, due to the influence of the COVID-19, the official record meeting was held instead of the dynamic event.
- Our vehicle was the only vehicle that set records among all EV vehicles.

Record Meeting Results

Acceleration	Skidpad	AutoCross	Endurance
Could not start	Could not start	Time:74.382s	Time:788.606



Our machine TF-22 Concept

- **To improve safety and reliability**
Completion of all dynamic events
- **To improve vehicle maneuverability (turning performance)**



TF-22 Specification

TF-22	
full length	2700mm
Height	1178mm
Width	1560mm
Wheelbase	1650mm
tread	Fr : 1300mm, Rr: 1280mm
gross weight	280kg -10kg
center of gravity	250mm -30mm
Front/rear weight distribution	40:60
motor	Permanent magnet synchronous motor
Maximum output	27kW x 2 units
Maximum torque	73Nm x 2 units
battery	lithium ion battery
Nominal capacity	7.3kWh



Compared with TF-20

Production Vehicle



Rebuild team experience, although TF-22 was not completed.

Result of 20th Student Formula Japan



- Rank **56th** of 63 teams,
9th of 14 EV teams

Tournament result report

item		score	rank
dynamic review	Acceleration	0/100	-
	skid pad	0/75	-
	autocross	0/125	-
	Endurance	0/275	-
	efficiency	0/100	-
Static examination	cost	13.65 /100	40th / 63
	design	40/150	42nd / 63
	presentation	29.52 /75	54th / 63
Total (Penalty -70) Due to delayed submission		13.17 /1000	56th / 63

Machine Concept of TF-23

The concept is
“Improving drivability & Improving maintainability”



**Improving
drivability**

By creating a machine with maneuverability,
we aim for good results in all driving tests.

**Improving
maintainability**

So that we can respond quickly when
something goes wrong with the machine.

Activity Plan

- **March : Completed Machine production , shakedown**

➡ Thorough progress management

- **April~July : Test run, machine setting**

➡ Collect driving data and make the best settings

- **August : Static event, test run, machine setting**

➡ Presentation practice, cost management

- **September : Tournament(dynamic event), Race driving data analysis**

- **October~ : deciding concept of the new machine**

We need many equipment



Charger in 2017



Main Connector in 2023

Thanks to you, we can continue our activities.

Thank you for your attention.