



# DATA FILE

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Issued in June 2019



*For a Better Tomorrow*  
**AISIN GROUP**

# History / Production Commencement / Sales Volume (Consolidated-basis)

## Powertrain Business

'80

1981.12



Completion of the second plant

1983.3



Completion of the "Hopeful Hill"

1985.7

Completion of the third plant (Electronics Plant)

1980.7 **World's First**

"03-71L", small torque capacity RWD 4-speed AT with lockup clutch

1981.7 **World's First**

"03-71LE", small torque capacity RWD electronically controlled 4-speed AT

1983.3

"20-30L", small torque capacity RWD 3-speed AT

1983.4 **World's First**

"10-40LE", small torque capacity FWD electronically controlled 4-speed AT

1987.6



Achieved a cumulative production of 10 million AT units

1987.11



Termination of the joint venture agreement between Aisin Seiki and Borg-Warner

1988.3



Company renamed to: Aisin AW Co., Ltd.

'00

2003.1



Achieved a cumulative production of 50 million AT units

2003.9



Completion of the Monozukuri Center

2004.5



Commencement of production at the Gamagori Plant

2006.1



Completion of the Okazaki East Plant

2002.5

"TR-60SN", high torque capacity RWD 6-speed AT

2002.7 **World's First**

"TF-60SN", medium torque capacity FWD 6-speed AT

2002.12

"XA-15LN", small torque capacity CVT

2004.4 **World's First**

"HD-10", FWD 2-motor hybrid system

\* World's first as an auto parts manufacturer

2006.1 **World's First**

"HR-10", RWD 2-motor hybrid transmission

2006.7 **World's First**

"TL-80SN", high torque capacity RWD 8-speed AT

2008.6

"HF-10", FWD 2-motor hybrid transmission

Establishment  
~'70

1969.5



Establishment of Aisin-Warner Ltd.

1971.6



Completion of the new headquarters and the first plant

1972.7

"03-55", small torque capacity RWD 3-speed AT

1977.5 **World's First**

"03-50", small torque capacity RWD 4-speed AT with overdrive

'90

1992.3



Establishment of Aisin AW Precision Co., Ltd. (present Tahara Plant)

1992.5



Completion of the head office main building

1998.7



Completion of the Okazaki Plant

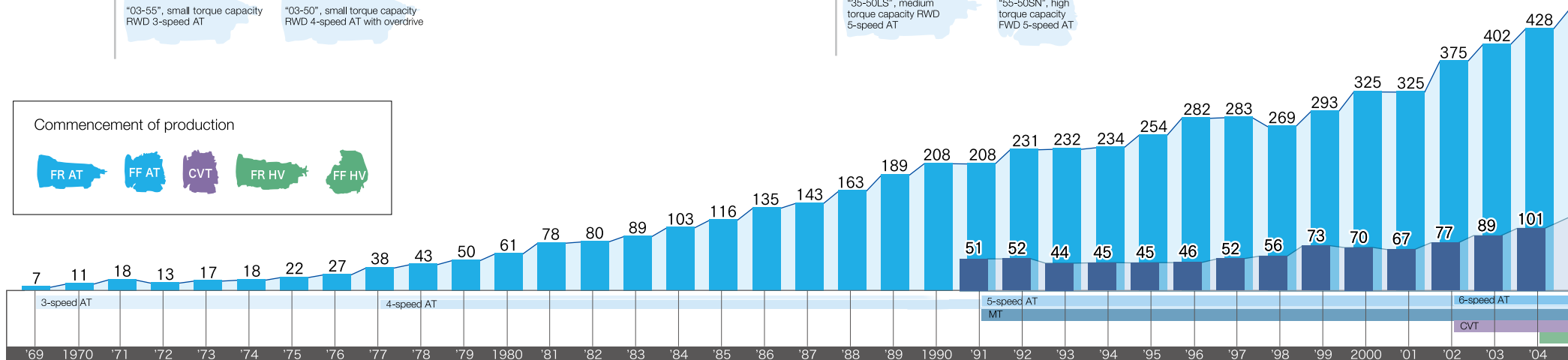
1997.6

"35-50LS", medium torque capacity RWD 5-speed AT

1998.9

"55-50SN", high torque capacity FWD 5-speed AT

Commencement of production



'10



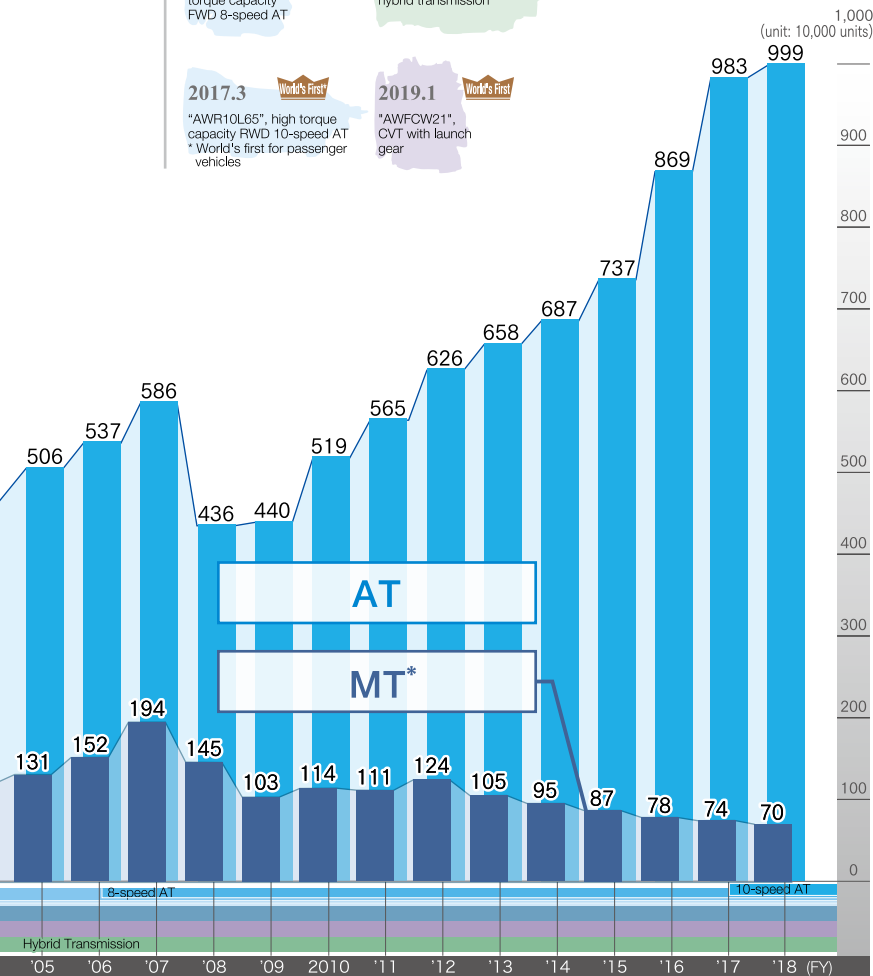
Completion of the Technical Center  
 Achieved a cumulative production of 100 million AT units  
 Business merger with Aisin AI Co., Ltd.

2012.5 **World's First!**  
 "AWF8F35", high torque capacity FWD 8-speed AT

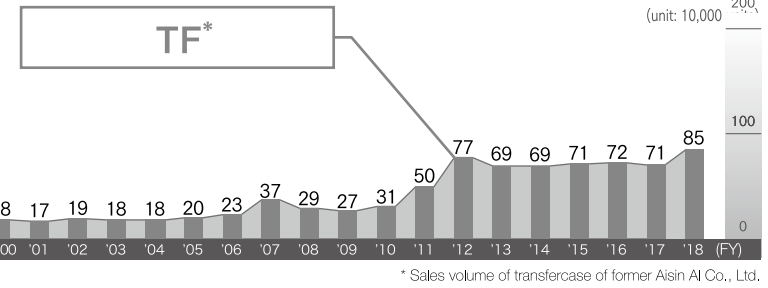
2016.12 **World's First!**  
 "AWRH50", RWD multi stage hybrid transmission

2017.3 **World's First!**  
 "AWR10L65", high torque capacity FWD 10-speed AT  
 \* World's first for passenger vehicles

2019.1 **World's First!**  
 "AWFCW21", CVT with launch gear

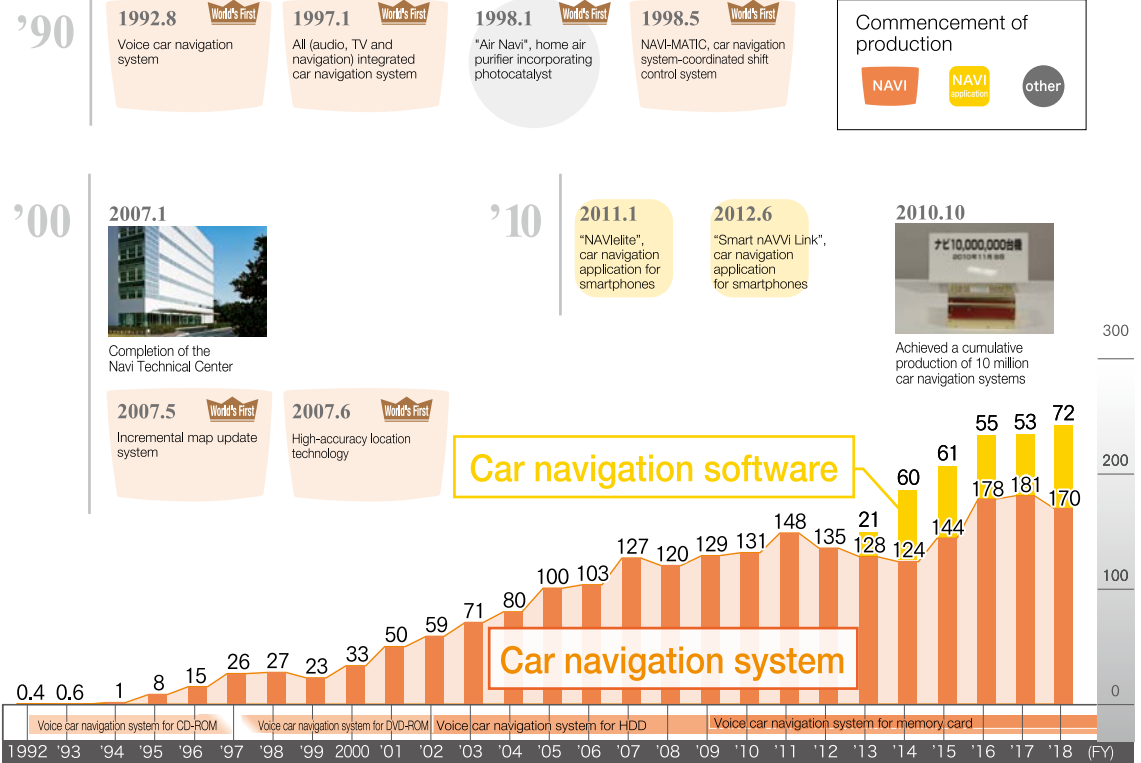


\* Sales volume of MT of former Aisin AI Co., Ltd.

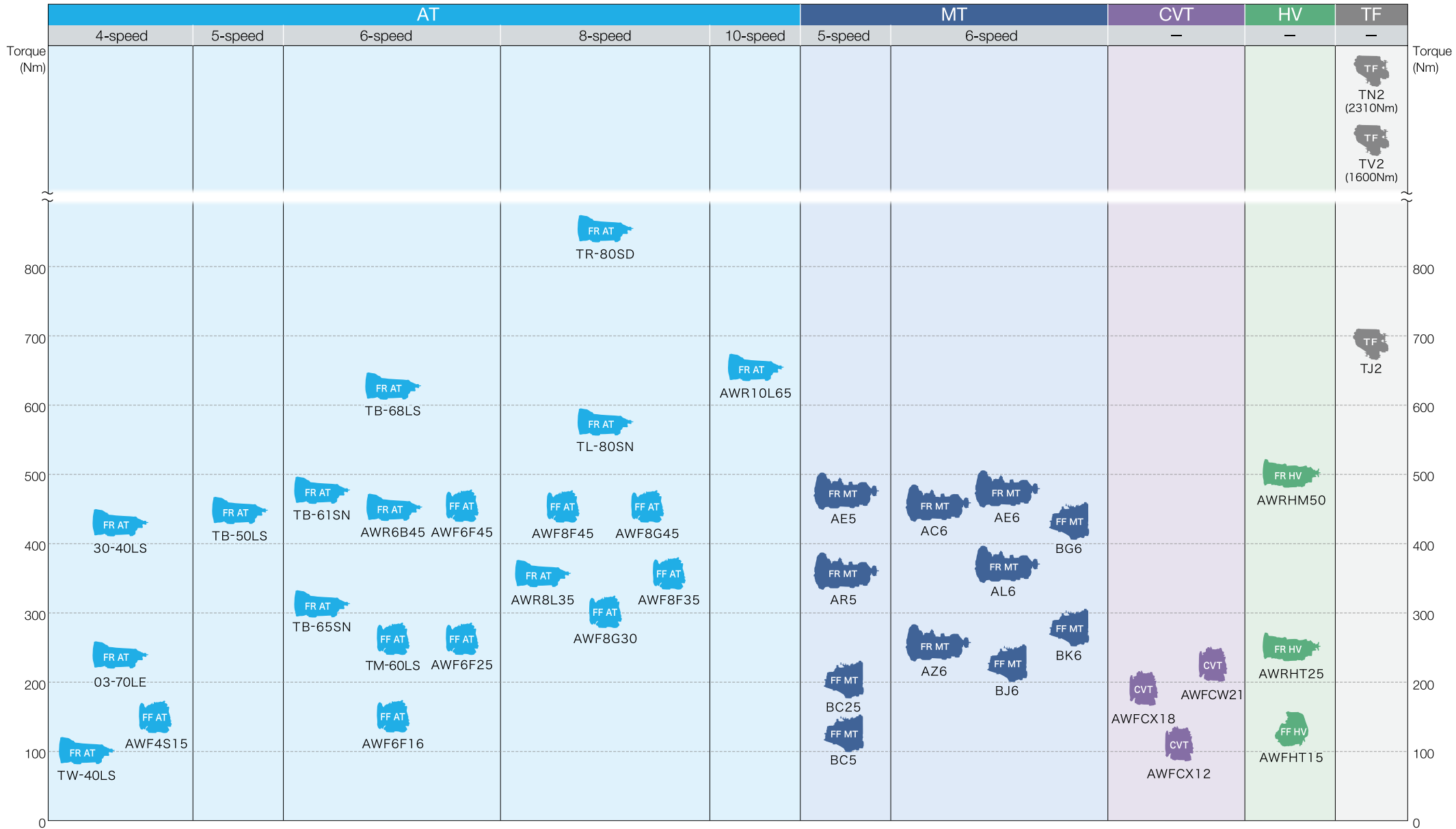


\* Sales volume of transference of former Aisin AI Co., Ltd.

### VIT Business and Other



# Major Powertrain Products



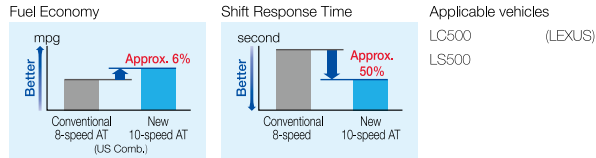
## AT High Torque Capacity RWD 10-Speed AT (AWR10L65)

World's First\*



World's First for passenger vehicles

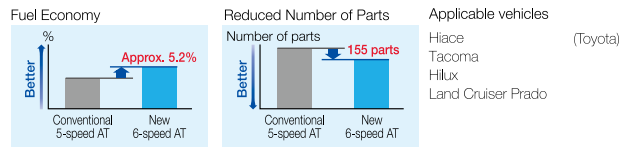
- Achieved rhythmic and smooth gear shifting with the adoption of cross gear steps
- Excellent responsiveness to the driver's acceleration achieved through weight reduction of components, improved hydraulic response and accuracy
- Fuel economy improved with expanded LOCK-UP range enabled by the development of high-performance small torque converter and further enhanced transmission efficiency



## AT High Torque Capacity RWD 6-Speed AT (AWR6B45)

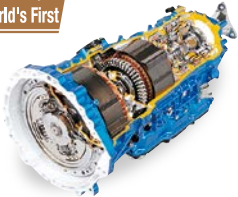


- Fuel economy is highly improved compared to conventional 5-speed and 6-speed ATs
- 6-speed AT for SUVs and trucks that achieved low cost and significant reduction in size and weight

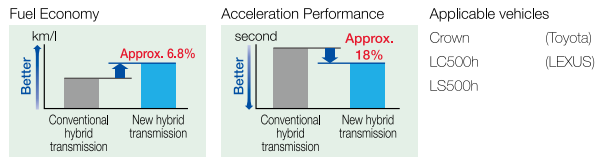


## HV RWD Multi Stage Hybrid Transmission (AWRHM50)

World's First



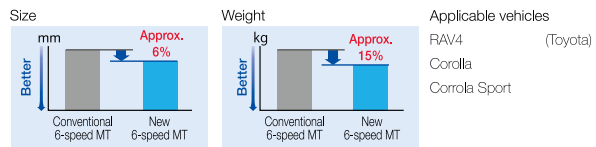
- Efficient use of engine and motor energy is enabled by the adoption of a multistage transmission to a hybrid transmission
- Acceleration performance and high fuel economy are achieved by significantly improved system output and transmission efficiency in the entire range



## MT Medium Torque Capacity FWD 6-Speed MT (BK6)



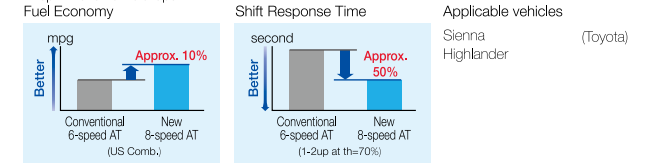
- Achieved lighter and more compact body by adopting a 2.5 shaft design
- Achieved top-class transfer efficiency through 35% oil reduction, resulted in the improvement of fuel efficiency



## AT High Torque Capacity FWD 8-Speed AT (AWF8G45)



- Thorough reduction of loss torque significantly improved fuel economy, and the expanded LOCK-UP range achieved excellent steering response
- Weight and size reduction achieved through changes in structure and materials of the gear train and the optimization of its shape

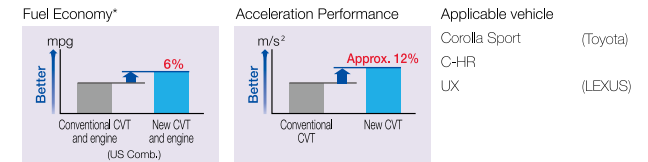


## CVT Direct Shift-CVT (AWFCW21)

World's First



- Realized outstanding fuel efficiency, 6% better than the current CVT, with direct and powerful driving performance, and top-class gear ratio range by adopting starting gear for CVT for the first time ever in the world
- The CVT belt is narrowed and the diameter of the pulley is reduced, increasing the shift speed by 20% for a smooth shift and powerful rhythmic driving performance

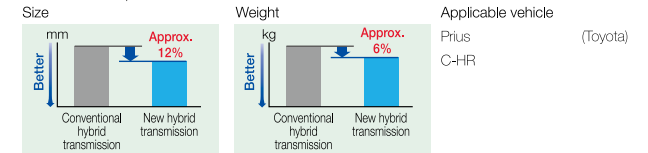


\* Effect of CVT and engine improvement

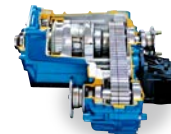
## HV Small Torque Capacity FWD 2-Motor Hybrid Transmission (AWFHT15)



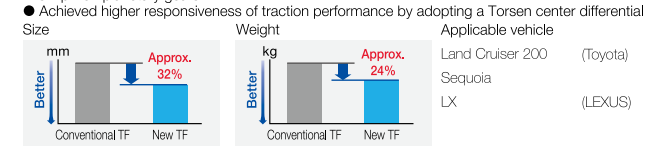
- Size and weight reduced compared to the conventional product, by arranging dual motor shafts, increasing engine speed, etc.
- Reduced loss torque by approx. 20% compared to the conventional product by introducing a parallel axis to the reduction gear (instead of the conventional planetary gear), and a motor with a new structure, etc.



## TF High Torque Capacity Transferscase (T2)



- Achieved high functionality required for premium SUVs by adopting full motor shift and Torsen differential
- Realized smaller and lighter body by integrating the differential case and hub, and adopting six-pinion planetary gears
- Achieved higher responsiveness of traction performance by adopting a Torsen center differential



# Latest VIT Functions

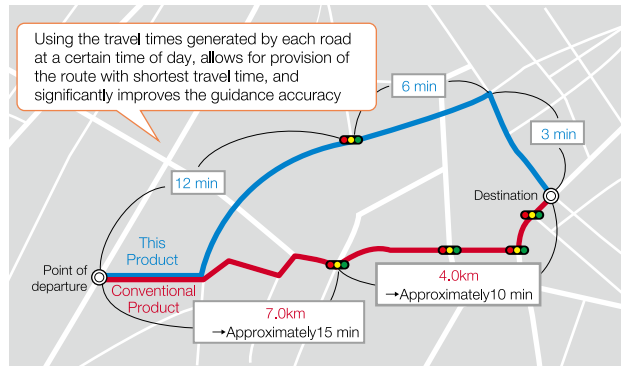
Server Route which provides the quickest and most accurate expected time of arrival

## Server Route

This function provides route with the minimum travel time and more accurate expected time of arrival by analyzing the statistical travel time data of the day and time generated from probe information compared to the conventional route calculation on a distance basis.

	Map Data to Use	Traffic Information to Use	Processing Unit	Route Calculation Process
This Product	Cloud map data	Real-time probe information Real-time VICS Statistical probe information	Cloud map data	Calculate the fastest route based on actual driving information including real-time and statistical traffic information
Conventional Product	On-board map data	Real-time probe information Real-time VICS Prediction VICS	On-board map data	Calculate a route based on distance after considering traffic information

This Product	Provides the fastest route based on the actual driving time	Results	
		Distance : 12km	Time : 21 minutes



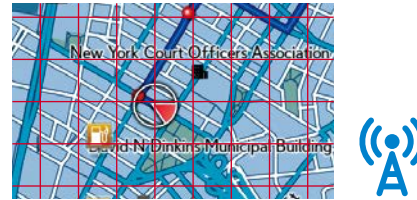
Conventional Product	Provides route based on the distance and the road type	Results	
		Distance : 11km	Time : 25 minutes

Provides the latest map smoothly

## Temporary Cached Map Scheme

This function allows for download of the latest map data on the cloud storage to an on-board device.

■ Manage the latest map data for all parcels on the cloud storage



■ Download the latest map data for each parcel needed to keep route guidance to internal memory of the on-board device



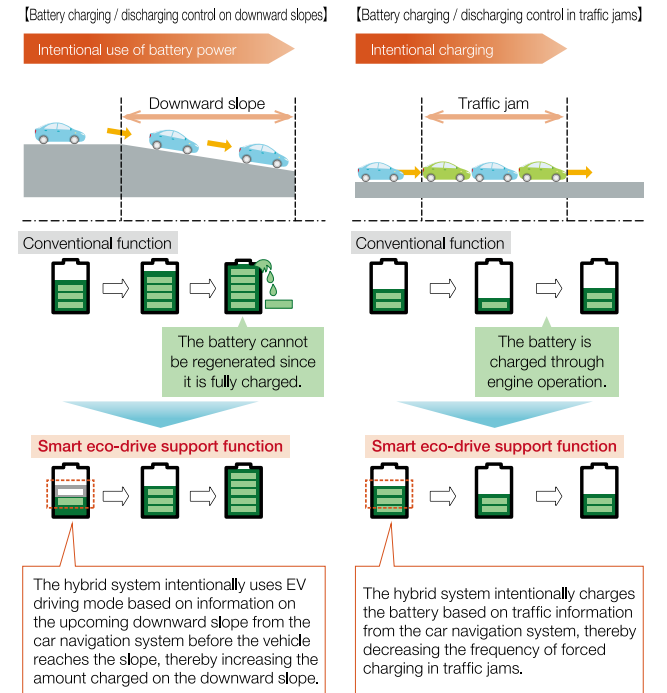
Timing	Download Data
Initial Route Calculation	Map data from the current vehicle position to the destination including the calculated route
When Driving	Map Data around the current vehicle position including the roads to guide

■ Commercialized the route guidance with the minimum size of the latest map data by using the on-board base map and the latest cached map for each parcel on the internal memory

Supporting eco-friendly driving by predicting the upcoming roadway

## Smart eco-drive support function

This function enables the car navigation system to obtain information on upcoming roadways and the hybrid system to optimize charging and discharging of the hybrid battery based on such information, thereby increasing the hybrid vehicle's actual fuel economy. This allows efficient operation to achieve high environmental performance even if the driver does not consciously drive eco-friendly.



# AW products installed Brands

## Japan

### Powertrain Business

Toyota Group  
TOYOTA  
LEXUS  
DAIHATSU  
HINO  
MITSUBISHI  
ISUZU  
MAZDA  
SUZUKI  
SUBARU

### VIT Business

Toyota Group  
TOYOTA  
LEXUS  
DAIHATSU  
HINO  
SUBARU  
ISUZU  
FUSO

## Europe

### Powertrain Business

Geely Automobile Group  
VOLVO (Sweden)  
LYNK&CO (Sweden)  
VW Group  
Volkswagen (Germany)  
ŠKODA (Czech)  
Audi (Germany)  
SEAT (Spain)

### PSA Group

PEUGEOT (France)  
CITROËN (France)  
DS (France)  
OPEL (Germany)  
VAUXHALL (U.K.)

### BMW Group

BMW (Germany)  
MINI (U.K.)

### FCA Group

FIAT (Italy)  
ABARTH (Italy)

### Tata Motors Group

JAGUAR (U.K.)  
LANDROVER (U.K.)

### VIT Business

#### VW Group

Volkswagen (Germany)  
Audi (Germany)  
LAMBORGHINI (Italy)  
BENTLEY (U.K.)  
PORSCHE (Germany)

## North/South America

### Powertrain Business

GM Group  
BUICK (U.S.A.)  
Cadillac (U.S.A.)  
CHEVROLET (U.S.A.)  
FCA Group  
JEEP (U.S.A.)

### VIT Business

#### GM Group

BUICK (U.S.A.)  
Cadillac (U.S.A.)  
CHEVROLET (U.S.A.)  
GMC (U.S.A.)

## Asia

### Powertrain Business

CHANGAN (China)  
SAIC Group  
MG (China)  
ROEWE (China)  
FAW Group  
BESTUNE (China)  
JUMPAL (China)  
SENIA (China)  
FENGSHEN (China)  
LUXGEN (China)  
Trumpchi (China)  
BAIC Group  
SENOVA (China)  
CHANGHE (China)  
BORGLWARD (China)  
Mahindra & Mahindra Group  
SsangYong (Korea)  
Mahindra (India)  
Geely Automobile Group  
GEELY (China)

### VIT Business

#### SAIC Group

ROEWE (China)

Number of installed vehicle brands (Not all vehicle types of each brand are equipped with our products.)

Powertrain Business  
22groups, 45brands

VIT Business  
7groups, 17brands

Number of customers

Powertrain Business  
22groups, 53companies

VIT Business  
12groups, 37companies

