



## CUTAWAY MODEL FOR TOYOTA HYBRID ENGINE 1NZE-FXE HYBRID SYNERGY DRIVE - GASOLINE AND ELECTRIC



### DL C4500M

#### LEARNING EXPERIENCE

This cutaway model shows the Toyota hybrid system (THS) which has two sources of power, the petrol engine and the electric motor. The THS recovers energy otherwise lost to heat in the brakes and uses it to supplement the power of its fuel-burning engine. MG1 (motor generator 1) generates electrical power and starts the engine; MG2 (motor generator 2) drives the vehicle. During deceleration, the wheels drive MG2 which acts as a generator for regenerative power recovery. The THS uses different modes to achieve the most efficient operation in response to driving conditions.

#### GENERAL CHARACTERISTICS

- Dim. mm approx (HxLxW) : 1300x1000x800
- Weight approx. kg 250

#### OPTION

- **DL C4500E** same as **DL C4500M** but operated electrically by means of two electric motors: one on the petrol engine and the other on the generator. The electric motors can be operated separately or simultaneously, according to teaching requirements. The engine is provided with nomenclature panel.

#### MAIN CHARACTERISTICS

The cutaway model shows the following main specifications :

- 4 cylinders
- Displacement: 1500 cc
- DOHC overhead camshaft
- 4 valves per cylinder
- Roller chain
- VVT-I system (Variable Valve Timing with intelligence) electronically controlled intake valves
- Multi-point electronic injection with throttle
- Electrical engine
- Epicyclic engine
- Generator
- Transmission belt (CTV)
- Gears
- Differential group
- Exhaust manifold with Lambda probe

The engine is mounted on a stand with wheels and it is operated manually by means of one crank handle placed on the thermal engine and one on the electric engine in order to simulate the different cycles.