



While heavy-duty trucks play an increasingly crucial role in the distribution of goods, their manufacturers face increasingly stringent requirements with regard to environmental performance. The 2003 SUPER GREAT series (launched in April 2003) reflects Mitsubishi Fuso Truck & Bus Corporation's (MFTBC's) response. It maintains a competitive edge over competitors in Japan by combining quietness (it satisfies Japan's 2001 noise regulations) with functionality that meets evolving market needs. Further, most SUPER GREAT-series models (including special-purpose models such as dump trucks and mixer trucks) are powered by 6M70T six-cylinder, turbocharged, intercooled engines, which not only offer high power and fuel economy but also achieve early compliance with Japan's 2004 limit (0.18 g/kWh) on particulate-matter (PM) emissions.

Notwithstanding the excellent environmental credentials of the SUPER GREAT models launched in April 2003, MFTBC subsequently created, in line with its constant goal of developing environment-friendly diesel vehicles, an ultra-low-PM model that realizes even better compliance with exhaust-emission regulations by means of an 'environment' engine whose emissions of PM (an exhaust-emission component that is particularly harmful to human health) are comprehensively minimized. This ultra-low-PM model was the first heavy-duty truck in Japan to qualify as a low-emission vehicle. It was launched in August 2003 (more than a year before the fall-2004 enforcement of Japan's new short-

term emissions regulations).

1. Targets

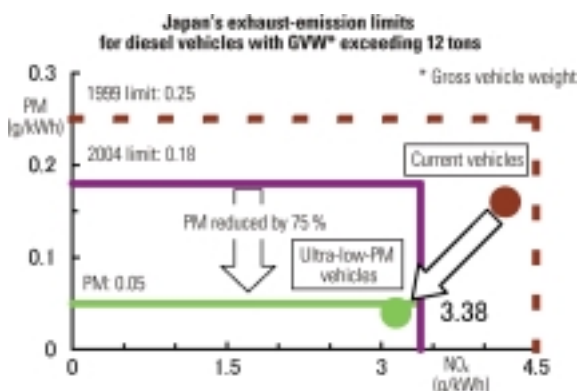
In developing the SUPER GREAT ultra-low-PM model, MFTBC sought to realize an ultra-low-PM vehicle whose PM emissions are 75 % lower than those permitted by Japan's 2004 exhaust-emission regulations. More specifically, it sought to achieve the cleanest operation among heavy-duty trucks in Japan together with uncompromised levels of power, quietness, fuel economy, and reliability by means of a new 'environment' engine (a conglomeration of state-of-the-art MFTBC technologies) and a new continuous-regenerative diesel-particulate filter (DPF).

2. Features

(1) New 'environment' engine with low exhaust emissions and low fuel consumption

MFTBC created a new 'environment' engine based on each of three engine variants (320PS, 350PS, and 380PS) in the five-variant 6M70T series.

To realize ultra-low emissions with no sacrifice in the class-leading power, fuel economy, and quietness of the original design, new technologies were employed in addition to the already-employed Mitsubishi Innovative Quiescent Combustion System and high-pressure common-rail fuel-injection system. These new technologies include an exhaust-gas-recirculation (EGR) system that operates under electronic control and incorporates a water-cooled gas cooler; a positive crankcase ventilation system that recirculates blowby gases into the intake system; and an onboard-diagnostics system that monitors the operating status of the EGR system and other emission-control equipment and makes an appropriate response in the event of an electrical open-circuit or other fault. In addition, a powerful Powertard compression-release brake (previously used with the 350PS and 380PS base engines) was adopted not only with the 6M70T2 (350PS) and 6M70T3 (380PS) but also with the relatively light 6M70T1 (320PS).



(2) New continuous-regenerative DPF

The newly developed continuous-regenerative DPF is an aftertreatment device that requires no filter-cleaning nor any other kind of regular maintenance. It consists of a powerful oxidizing catalyst, which breaks down unburned fuel and oil, and a filter, which captures and burns soot. Its design precludes maintenance costs by ensuring that the filter does not become clogged during low-speed vehicle operation and by obviating the need for active regeneration (which would increase fuel consumption). Further, the continuous-regenerative DPF is approximately the same size as a conventional exhaust muffler and can thus be used in already-existing vehicle layouts. Plus, it permits the tailpipe to be shorter (and concomitantly lighter) than that used with a conventional muffler. Since the tailpipe opening can be located under the center of the vehicle (rather than at the tail), more space within the wheelbase can be used for vehicle-mounted equipment (for example, refrigeration equipment). And the side guards do not need heat-resistant paint since they are not directly exposed to exhaust gases. Thus, equipment-layout freedom is enhanced and costs are reduced.

(3) Preferential government treatment

- Reduced vehicle purchase tax

By not only satisfying Japan's 2004 exhaust-emission regulations but also achieving PM emissions that are 75 % lower than the permitted level, the ultra-low-PM model meets the requirements of Japan's certification system for ultra-low-PM-emission diesel vehicles (the most stringent certification system of its kind). Customers in Japan thus enjoy a 1.5 % reduction in vehicle purchase tax until the end of March 2005.

- Subsidies

Customers in Japan purchasing the ultra-low-PM

model in 2003 receive subsidies provided by the national government, local authorities, and other public bodies.

- Other benefits

The ultra-low-PM model is recognized as a low-emission vehicle under the 8-Tokenshi and LEV-6 certification systems operated by prefectural authorities in the Kanto and Kansai regions, respectively, and is eligible to be counted toward the proportion of low-emission vehicles that local authorities in the Tokyo metropolitan area require truck operators to own. Purchasers can thus make unrestricted use of the ultra-low-PM model throughout Japan.

(4) Vehicle lineup

The ultra-low-PM model is currently available in the FT, FU, and FS series of long-body cargo trucks, which are used mainly on fixed distribution routes. With the FU series and FS series, it is offered with rear-axle air suspension (heavy-duty trucks with rear-axle air suspension are selling in rapidly growing volumes) and with all-axle air suspension (a choice for customers seeking even higher transportation quality, better ease of loading and unloading, and a low cargo deck). The range of vehicle and component choices is further expanded by incorporation of MFTBC's increasingly popular Intelligent and Innovative Mechanical Automatic Transmission (INOMAT) in order to reduce driver fatigue and fuel economy in FU- and FS-series vehicles that have the 380PS engine variant and a GVW of 25 tons.

3. Major specifications

Major specifications of key vehicle variants are shown in the following table.

Specifications		Model	6 x 2 (dual front axle) leaf-spring-suspension cargo truck	6 x 2 (dual rear axle) Air-suspension cargo truck	8 x 4 low-deck	
					Air-suspension cargo truck	All-axle-air-suspension cargo truck
			FT50JVX2X	FU54JUJ3X	FS54JVZ3X	FS55JVZ3X
Dimensions	Overall length (mm)	11,990				
	Overall width (mm)	2,490				
	Overall height (mm)	2,920	2,900	2,960	2,930	
	Wheelbase (mm)	7,550	7,220	7,480		
	Tread (mm)	Front (mm)	2,050		2,060	
	Rear (mm)	1,845		1,855		
Weights	Vehicle weight (kg)	7,990	8,540	8,660	8,830	
	Max. payload (kg)	11,800	16,200	16,100	15,900	
	Gross vehicle weight (kg)	19,900	24,850	24,870	24,840	
Engine	Model	6M70T2		6M70T3		
	Displacement (L)	12,882				
	Max. output {kW (PS)/min ⁻¹ }	257 (350)/2,200		279 (380)/2,200		
	Max. torque {Nm (kgf·m)/min ⁻¹ }	1,520 (155)/1,200		1,618 (165)/1,200		
Chassis	Suspension	Front	Long-taper leaf springs			Air springs
		Rear	Long-taper leaf springs	Air springs		
	Brakes	Wedge-type full air brakes				
	Tires	Front	11R22.5-14PR	295/80R22.5	245/70R19.5	
Rear		11R22.5-14PR		245/70R19.5		

(HDT/MDT Project: Noguchi)