MITSUBISHI
FORKLIFT TRUCKS

GRENDIA

Internal Combustion Pneumatic Tyre

1.5–3.5 ton

SETTING NEW STANDARDS

Mitsubishi GRENDIA Series Forklift Trucks

FGE15N
Electronically controlled gasoline engine
Capacity rating 1500kg @ 500mm load center

A next generation, higher performance machine.

Thanks to the application of new technologies, the Mitsubishi Grendia is not only easier to operate but friendly to the environment as well.

The new Mitsubishi Grendia's engine is very fuel-efficient and has ultra low emissions, which either complies with or exceeds the latest international environmental standards. In addition to its newly designed engine, Mitsubishi Forklift Trucks has increased rider comfort and enhanced safety. For instance, all Grendia forklift trucks incorporate an Integrated Presence System (IPS), which enhances safety and helps reduce accidents. LCD graphic displays and digital monitoring systems also make the Grendia safer and more efficient.

It's the forklift of tomorrow that's available today.

MOVING AHEAD

FD25N

Diesel engine
Capacity rating 2500kg @ 500mm load center

GRENDIA'S ECO-POWER

MEETS THE ENVIRONMENTAL REQUIREMENTS OF TODAY AND TOMORROW.

NEW 2007 EMISSION STANDARDS COMPLIANT*: NEW ELECTRONICALLY CONTROLLED GASOLINE ENGINE

Mitsubishi Grendia's advanced gasoline engine, which helped pioneer the standard use of electronically controlled fuel injection and three-way catalytic converters in forklift trucks, has evolved even further. The new Grendia has achieved remarkable environmental controls and complies with all 2007 Emission Standards while still maintaining high performance and reliability levels.

* 2007 Emissions Standard for Specific Special Vehicles (including off-road vehicles)
Compliant with Emissions Standard for Specific Special Vehicles
Ministry of the Environment
Ministry of Economy, Trade and Industry
Ministry of Land, Infrastructure and Transport


Electronically controlled gasoline engine K25E


Three-way catalytic converter

TWO-LEVEL HIGH/LOW SPEED LIMITER

The Grendia's automatic speed limiter can be set to two levels – outdoors (HIGH) and indoors (LOW).

Drivers can alternate between the two speed limits at the flick of a switch, helping them to choose the most appropriate fuel efficiency for the location.

- Standard for Electronically Controlled Gasoline Engine Trucks

POWER/SOFT MODE SWITCH

Depending on the task, two power levels can be selected: POWER mode, which maximizes power output and SOFT mode for fuel efficiency and low noise levels. Selecting SOFT mode cuts CO_2 emissions by approximately 13% compared to the POWER mode.

- Standard for Electronically Controlled Gasoline Engine Trucks

2007 EMISSION STANDARDS COMPLIANT*: HIGH RELIABILITY DIESEL ENGINE

The well-known performance levels of the highly acclaimed Mitsubishi Diesel Engine have been maintained but now come with eco-friendly refinements. The upgraded engines have now achieved low emission levels in compliance with the 2007 Emission Standards without compromising horsepower or reliability.

- 2007 Emissions Standard for Specific Special Vehicles (including off-road vehicles)

Compliant with Emissions Standard for
Specific Special Vehicles
Ministry of the Environment
Ministry of Economy, Trade and Industry
Ministry of Land, Infrastructure and Transport

■ Swirl-chamber diesel engine S4S

OPTIONAL ECO-FRIENDLY VEHICLES WITH CLEAN EXHAUST EMISSIONS

Besides the gasoline-powered and diesel-powered models, the Grendia is also available in other clean exhaust, energy-efficient models. These include LPG-powered or diesel trucks fitted with DPF (Diesel Particulate Filter) that helps eliminate possible black smoke.

Vehicle fitted with DPF helps eliminate black smoke.

The ceramic DPF filter recovery unit is fitted inside the right-side step of the machine.

DPF exhaust monitor. Displays filter levels and necessary recovery time.

■ LPG powered version

LOW-NOISE DESIGN FOR MAXIMUM COMFORT WITH MINIMAL OPERATOR FATIGUE

With features such as low-noise engine, enhanced soundproofing of the engine compartment and floor level noise dampening, Mitsubishi Forklift Trucks has achieved a quiet working environment both for the operator and the surrounding working environment.

- ISO-equivalent noise level (When diesel engine is in SOFT mode at high idle speed)

"SAFETY FIRST"

– YET ANOTHER GRENDIA HALLMARK

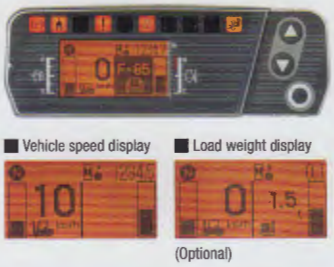
INTEGRATED PRESENCE SYSTEM – "IPS"

IPS
INTEGRATED PRESENCE SYSTEM

Grendia is fitted with Mitsubishi's IPS, an integrated active safety system designed to improve vehicle safety by actively detecting problems before they become accidents. It not only ensures safety during vehicle operation but also prevents errors when the operator is not seated, protecting both the operator and the workplace from potential accidents.

NEW INTEGRATED DIGITAL MONITORS

In the cab, digital displays are used to provide easier monitoring of systems and controls. The digital panel illuminates when the ignition is switched on allowing speed, load weight and system monitors to be checked at a glance.



■ Vehicle speed display ■ Load weight display

(Optional)

MAST AND TRAVEL INTERLOCK

Mitsubishi Grendia forklift trucks are equipped with mast and travel interlock protection device that is linked to the operator's seat. If the operator is not seated, the mast and (for torque-converter models) the movement of the vehicle itself, is automatically locked in order to prevent injury or damage to property.

- Note that brakes are not applied in travel interlocking, so trucks can still move on slopes due to gravity.

LIFT LOCK

The fork on the Mitsubishi Grendia is automatically locked when the ignition is switched off, so it remains in position even if the lift lever is accidentally bumped or moved.

INNOVATIVE AND RELIABLE SAFETY FEATURES HELP PROTECT OPERATORS AND WORKPLACE

NEUTRAL SAFETY

A Neutral Safety device, which prevents the engine from starting unless the forward/backward lever is positioned at neutral, is now built in on all vehicles, including all torque-converter-fitted vehicles and all direct drive vehicles.

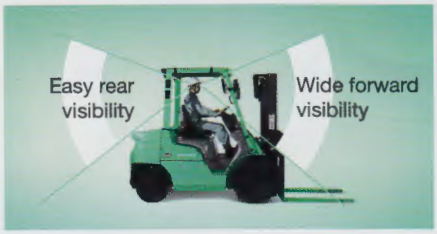
HIGH-MOUNTED REAR COMBINATION LAMP

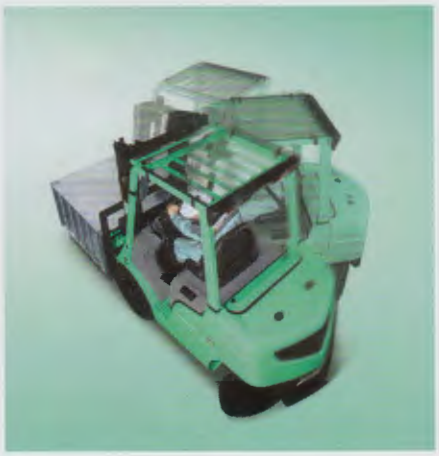
All Mitsubishi Grendias are installed with rear combination lamps above the head guard that clearly signals braking or stopping to vehicles or persons behind the forklift truck.

• Positions will differ for forklifts requiring vehicle inspections in Japan.

WIDE FORWARD VISIBILITY CLEAR REAR VISIBILITY

Unlike some forklift trucks, Mitsubishi Grendias have wide unobstructed visibility that extends from the tip of the fork to the top of the mast. Greater rear visibility is made possible by the Grendia's compact tail design.





POWERFUL, SMOOTH AND COMPACT.
EXCELLENT PERFORMANCE
FOR SPEEDY WORK.

POWERFUL LIFTING CAPACITY

Mitsubishi Grendias are constructed with a low center of gravity frame that optimizes vehicle balance and stability during lifting. That means a greater load capacity with much greater stability. The high-torque, high-power engine maintains a stable lift speed regardless of the load, helping operators to increase productivity.

EXCELLENT LIFTING ABILITY

Lift speed: **640mm/s** (when loaded)
660mm/s (when not loaded) • FGE25ZN

No capacity deration up to a height of 4 meters (2-stage mast).

SOFT LANDINGS

Another exclusive feature found on the Mitsubishi Grendia is soft landing system that activates when the fork nears the ground, automatically protecting loads from hard drops or shocks.

• Only for two-stage masts.

SMOOTH RUNNING

The high power engine and the high performance transmission are perfectly matched to produce an extremely smooth start/acceleration as well as excellent traction even on uphill slopes. Excellent braking and stopping control is provided by a robust and reliable duo-servo system.

SMOOTH ACCELERATION

10m acceleration **3.1** seconds (unloaded)
• FD25N

POWERFUL UPHILL ABILITY

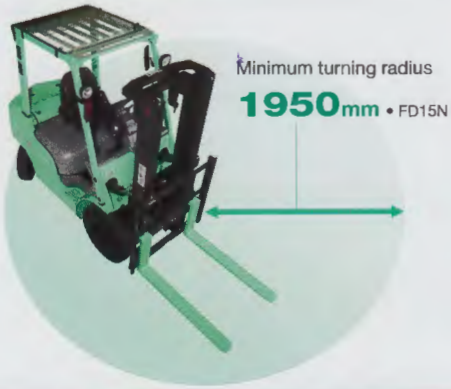
12 degree uphill velocity **5.0**km/h (unloaded)
• FD25N

COMPACT TURNING

Tight turns are easy with the Grendia thanks to a fully hydraulic power steering fitted with steering synchronizer/mechanism for 100% stationary steering. Its maneuverability allows for easy U-turns and navigation in small workspaces.

* Steering synchronizer is optional on alternate sourced (MFD) Grendia trucks.

EXCELLENT STEERING ABILITY



GRENDIAS ARE EASY TO MANEUVER EVEN IN CRAMPED WAREHOUSES AND DELIVERY BAYS

EASY OPERATION. DRIVER COMFORT.

1 – **Suspension seat** with hip support mechanism.
Ability to adjust position and extent of reclining according to body shape for maximum comfort. Seat belt fitted with warning light. Soft-grip handle makes getting in and out easier.

2 – **Electric shift lever** can be moved back and forth at the touch of a finger. (for torque-converter models only)

3 – **Acrylic roof** (optional) for comfortable operation in outdoor conditions. Easily installed and uninstalled.

4 – **Tiltable steering column**.

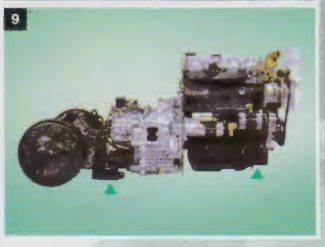
5 – **Fully hydraulic power steering**.
Fitted with steering synchronizer, a mechanism that automatically matches the rear wheel angle to the steering angle.

6 – **Inching pedal** allows delicate movements.

7 – **Switches** for optional functions positioned on the right side of the dashboard.

8 – **Combination switch** integrating indicators and headlight switches.

9 – **Power-train full floating structure** for excellent vibration reduction. The entire power-train is supported by vibration absorbent rubber mounts.

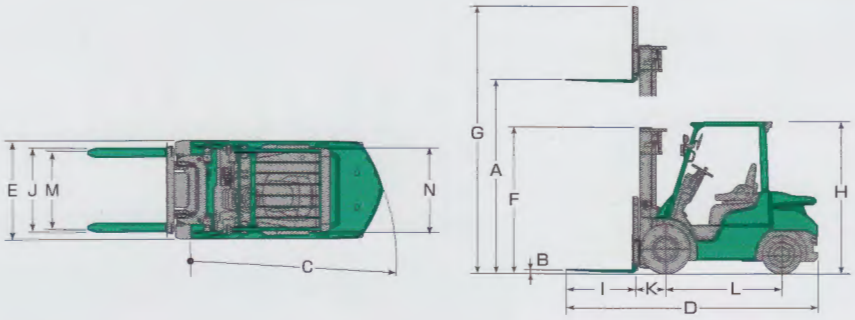


* Steering synchronizer is optional on alternate sourced (MFD) Grendia trucks.

Specifications

CHARACTERISTICS												
Type of Truck					DIESEL ENGINE TRUCK							
Model					FD15N	FD18N	FD20CN	FD20N	FD25N	FD30N	FD35N
Loading Capacity			kg		1500	1750	2000		2500	3000	3500
Load Center			mm		500		500			500	
PERFORMANCE											
Maximum Fork Height			mm	A	3000		3000			3000	
Free Fork Height			mm	B	115		120	140		145	
Speeds	Lifting	Loaded	mm/s		630		630			500	420
		Unloaded	mm/s		690		650	660		530	450
	Lowering	Loaded	mm/s		520		520	500		530	420
		Unloaded	mm/s		500		500			500	400
Tilt	Mast	Forward	deg		6		6			6	
		Backward	deg		12		12			12	
Speeds	Traveling (Powershift)	Loaded	km/h		19		19			19	
		Unloaded	km/h		19.5		19.5			19.5	
	Traveling (Manual)	Loaded	km/h		19		19			19	
		Unloaded	km/h		19.5		19.5			19.5	
Maximum Drawbar Pull	Powershift	Loaded	kgf		1260	1250	1210	1830	1810	1770	1680
	Manual	Loaded	kgf		1180	1160	1130	1500	1480	1460	1380
Maximum Gradeability	Powershift	Loaded	%		33	29	25	36	31	25	21
	Manual	Loaded	%		30	27	23	29	24	20	17
Turning Radius			mm	C	1950	1980	2020	2200	2230	2380	2440
Practical Intersecting Aisle Width			mm		2065	2080	2105	2195	2215	2325	2365
Practical Aisle for Right Angle Stacking			mm		3650	3680	3735	3955	3985	4170	4230
DIMENSIONS											
Overall Length			mm	D	3180	3220	3275	3405	3480	3805	3865
Width	with Standard Tires		mm	E	1065		1065	1150		1275	1290
	with Optional Duals		mm		1330		–	1480		1490	
Height	with Lowered Mast		mm	F	1990		1990			2015	2130
	with Extended Mast (with Backrest)		mm	G	4055		4055			4055	
	to Top of Overhead Guard		mm	H	2065		2065	2074		2093	2103
Forks (Thickness x Width x Length)			mm	I	35x100x920		40x122x920			50x125x1070	
Fork Spread (Out-to-Out Minimum / Maximum)			mm	J	200~920		244~920	244~1000		244~1000	
Front Overhang (Center of Front Axle to Fork Face)			mm	K	400		415	455		490	
Wheelbase			mm	L	1400		1400	1600		1700	
Tread Width	Front, standard tires		mm	M	890		890	960		1060	
	Front, optional duals		mm		1025		–	1140		1140	
	Rear tyres		mm	N	900		900	980		980	
Ground Clearance	at Lowest point mast		mm		110		110	115		135	150
	at Center of Wheelbase		mm		150		150	160		190	200
Tyre Size	Size Front, standard				6.50–10–10–PR		6.50–10/5.00	7.00–12–12PR		28x9–15–12PR	250–15–16PR
	Size Front, optional dual				4.50–12–8–PR		–	5.50–15–8PR		6.00–15–10PR	
	Size Rear				5.00–8–8–PR		5.00–8/3.00	6.00–9–10PR		6.50–10–10PR	6.50–10–12PR
WEIGHT											
Empty	Powershift (standard)		kg		2550	2740	3060	3410	3710	4350	4740
	Manual (standard)		kg		2590	2780	3100	3450	3750	4390	4780
	Powershift (optional dual)		kg		2590	2780	–	3500	3800	4390	4770
	Manual (optional dual)		kg		2630	2820	–	3540	3840	4430	4810
BRAKE											
Service Brake					Hyd.		Hyd.			Hyd.	
Parking Brake					Hand		Hand			Hand	
POWERTRAIN											
Engine	Model				S4Q2		S4Q2	S4S		S4S	
	Max. Rated Power / rpm to DIN 70020		Kw/rpm		30 / 2500		30 / 2500	38.1 / 2250		38.1 / 2250	
			ps/rpm		40 8 / 2500		40.8 / 2500	51.8 / 2250		51.8 / 2250	
	Max. Rated Torque / rpm to DIN 70020		Nm/rpm		131 / 1800		131 / 1800	185 / 1700		185 / 1700	
			kgm/rpm		13.4 / 1800		13.4 / 1800	18.9 / 1700		18.9 / 1700	
	Displacement		cc		2505		2505	3331		3331	
	Fuel Tank Capacity		ℓ		46		46	66		66	
Transmission	Type				Powershift / Manual		Powershift / Manual			Powershift / Manual	

GASOLINE ENGINE TRUCK											
	FG15N	FG15ZN	FG18N	FG18ZN	FG20CN	FG20N	FG20ZN	FG25N	FG25ZN	FG30N	FG35N
	1500		1750		2000			2500		3000	3500
	500				500					500	
	3000				3000					3000	
	115				120	140		145		145	
490		570	490	570	570	520	580	520	580	460	390
560		650	560	650	650	600	660	600	660	530	450
	520				520	500				530	420
	500				500					500	400
	6				6					6	
	12				12					12	
	19				19					19	
	19.5				19.5					19.5	
	19				19					19	
	19.5				19.5					19.5	
1130	1110	1530	1090	1520	1480	1520	1750	1500	1730	1710	1630
990	960	1280	950	1270	1230	1280	1620	1250	1590	1590	1500
38	29	41	25	36	31	30	35	25	30	24	20
33	24	33	22	29	25	25	32	21	27	22	19
1910	1950		1980		2020	2200		2230		2380	2440
2045	2065		2080		2105	2195		2215		2325	2365
3610	3650		3680		3735	3955		3985		4170	4230
2980	3180		3220		3275	3405		3480		3805	3865
	1065				1065	1150				1275	1290
	1330				–	1480				1490	
	1990				1990					2015	2130
	4055				4055					4055	
	2065				2065	2074				2093	2103
35x100x770	35x100x920				40x122x920					50x125x1070	
	200~920				220~920	220~1000				250~1000	
	400				415	455		460		495	
	1400				1400	1600				1700	
	890				890	960				1060	
	1025				–	1140				1140	
	900				–	980				980	
	110				110	115				135	150
	150				150	160				190	200
	6.50–10–10–PR				6.50–10/5.00	7.00–12–12PR				28x9–15–12PR	250–15–16PR
	4.50–12–8–PR				–	5.50–15–8PR				6.00–15–10PR	
	5.00–8–8–PR				5.00–8/3.00	6.00–9–10PR				6.50–10–10PR	6.50–10–12PR
2130	2490		2690		3010	3300		3600		4240	4630
2170	2530		2730		3050	3340		3640		4280	4670
2170	2530		2730		–	3390		3690		4280	4660
2210	2570		2770		–	3430		3730		4320	4700
	Hyd.					Hyd.					Hyd.
	Hand					Hand					Hand
K15	K21	K15	K21		K21	K25	K21	K25		K25	
26 / 2450	34 / 2200	26 / 2450	34 / 2200		34 / 2200	40 / 2200	34 / 2200	40 / 2200		40 / 2200	
35.4 / 2450	46.2 / 2200	35.4 / 2450	46.2 / 2200		46.2 / 2200	54.4 / 2200	46.2 / 2200	54.4 / 2200		54.4 / 2200	
109 / 2000	158 / 1600	109 / 2000	158 / 1600		158 / 1600	186 / 1600	158 / 1600	186 / 1600		186 / 1600	
11.1 / 2000	16.1/ 1600	11.1 / 2000	16.1/ 1600		16.1/ 1600	19.0 / 1600	16.1 / 1600	19.0 / 1600		19.0 / 1600	
1486	2065	1486	2065		2065	2488	2065	2488		2488	
	46				46	66				66	
	Powershift / Manual					Powershift / Manual					Powershift / Manual

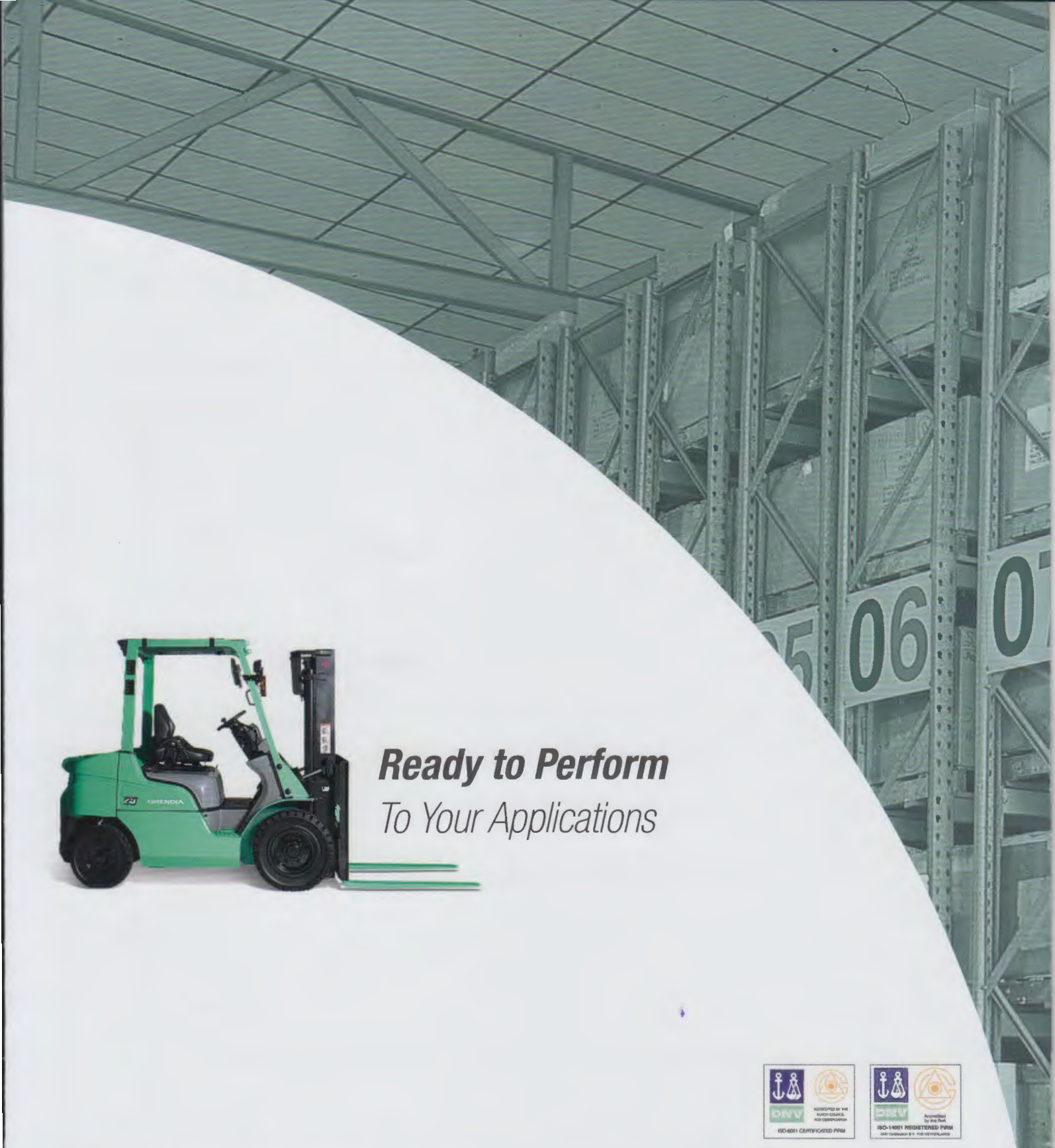


ELECTRONICALLY CONTROLLED GASOLINE ENGINE TRUCK								
FGE15N	FGE18N	FGE20CN	FGE20N	FGE20ZN	FGE25N	FGE25ZN	FGE30N	FGE35N
1500	1750	2000			2500		3000	3500
500		500					5000	
3000		3000					3000	
115		120	140				145	
630		630	580	640	580	640	510	430
650		650	590	660	590	660	530	440
520		520	500				530	420
500		500					500	400
6		6					6	
12		12					12	
19		19					19	
19.5		19.5					19.5	
19		19					19	
19.5		19.5					19.5	
1710		1670	1690	1860	1690	1870	1860	1750
1390	1380	1360	1390	1630	1380	1620	1660	1560
48	42	36	34	38	29	33	27	22
38	34	29	28	33	24	28	24	20
1950	1980	2020	2200		2230		2380	2440
2065	2080	2105	2195		2215		2325	2365
3650	3680	3735	3955		3985		4170	4230
3180	3220	3275	3405		3480		3805	3865
1065		1065	1150				1275	1290
1330		–	1480				1490	1490
1990		1990					2015	2130
4055		4055					4055	
2065		2065	2074				2093	2103
35x100x920		40x122x920					50x125x1070	
200~920		244~920	244~1000				244~1000	
400		415	455				490	
1400		1400	1600				1700	
890		890	960				1060	
1025		–	1140				1140	
900		900	980				980	
110		110	115				135	150
150		150	160				190	200
6.50–10–10–PR		6.50–10 / 5.00	7.00–12–12PR				28x9–15–12PR	250–15–16PR
4.50–12–8–PR		–	5.50–15–8PR				6.00–15–10PR	
5.00–8–8–PR		5.00–8 / 3.00	6.00–9–10PR				6.50–10–10PR	6.50–10–12PR
2490	2690	3010	3300		3600		4240	4630
2530	2730	3050	3340		3640		4280	4670
2530	2730	–	3390		3690		4280	4660
2570	2770	–	3430		3730		4320	4700
Hyd.		Hyd.					Hyd.	
Hand		Hand					Hand	
K21E		K21E	K25E	K21E	K25E		K25E	
(GAS) 36.8 / 2700 (LPG) 37.5 / 2700		(GAS) 36.8 / 2700 (LPG) 37.5 / 2700	(GAS) 43.1 / 2700 (LPG) 43.8 / 2700	(GAS) 36.8 / 2700 (LPG) 37.5 / 2700	(GAS) 43.1 / 2700 (LPG) 43.8 / 2700		(GAS) 43.1 / 2700 (LPG) 43.8 / 2700	
(GAS) 50.0 / 2700 (LPG) 51.0 / 2700		(GAS) 50.0 / 2700 (LPG) 51.0 / 2700	(GAS) 58.6 / 2700 (LPG) 59.6 / 2700	(GAS) 50.0 / 2700 (LPG) 51.0 / 2700	(GAS) 58.6 / 2700 (LPG) 59.6 / 2700		(GAS) 58.6 / 2700 (LPG) 59.6 / 2700	
(GAS) 145 / 1800 (LPG) 151 / 1800		(GAS) 145 / 1800 (LPG) 151 / 1800	(GAS) 167 / 1600 (LPG) 186 / 1600	(GAS) 145 / 1800 (LPG) 151 / 1800	(GAS) 167 / 1600 (LPG) 186 / 1600		(GAS) 167 / 1600 (LPG) 186 / 1600	
(GAS) 14.8 / 1800 (LPG) 15.4 / 1800		(GAS) 14.8 / 1800 (LPG) 15.4 / 1800	(GAS) 17.0 / 1600 (LPG) 19.0 / 1600	(GAS) 14.8 / 1800 (LPG) 15.4 / 1800	(GAS) 17.0 / 1600 (LPG) 19.0 / 1600		(GAS) 17.0 / 1600 (LPG) 19.0 / 1600	
2065		2065	2488	2065	2488		2488	
46		46	66				66	
Powershift		Powershift					Powershift	

MAINTENANCE

CENTRALIZED MAINTENANCE POINTS FOR EASY INSPECTION AND MAINTENANCE

Inspection and maintenance is made easy thanks to a fully extendable engine hood, removable side covers and centralized maintenance points. In addition, the time intervals between oil changes and lubrication requirements have been increased, resulting in lower maintenance costs.



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FMIT0098-04 (11/12)

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