



ELECTRIC DRIVE TRACTOR

THE FUTURE
IS COMING
SEPTEMBER
2020



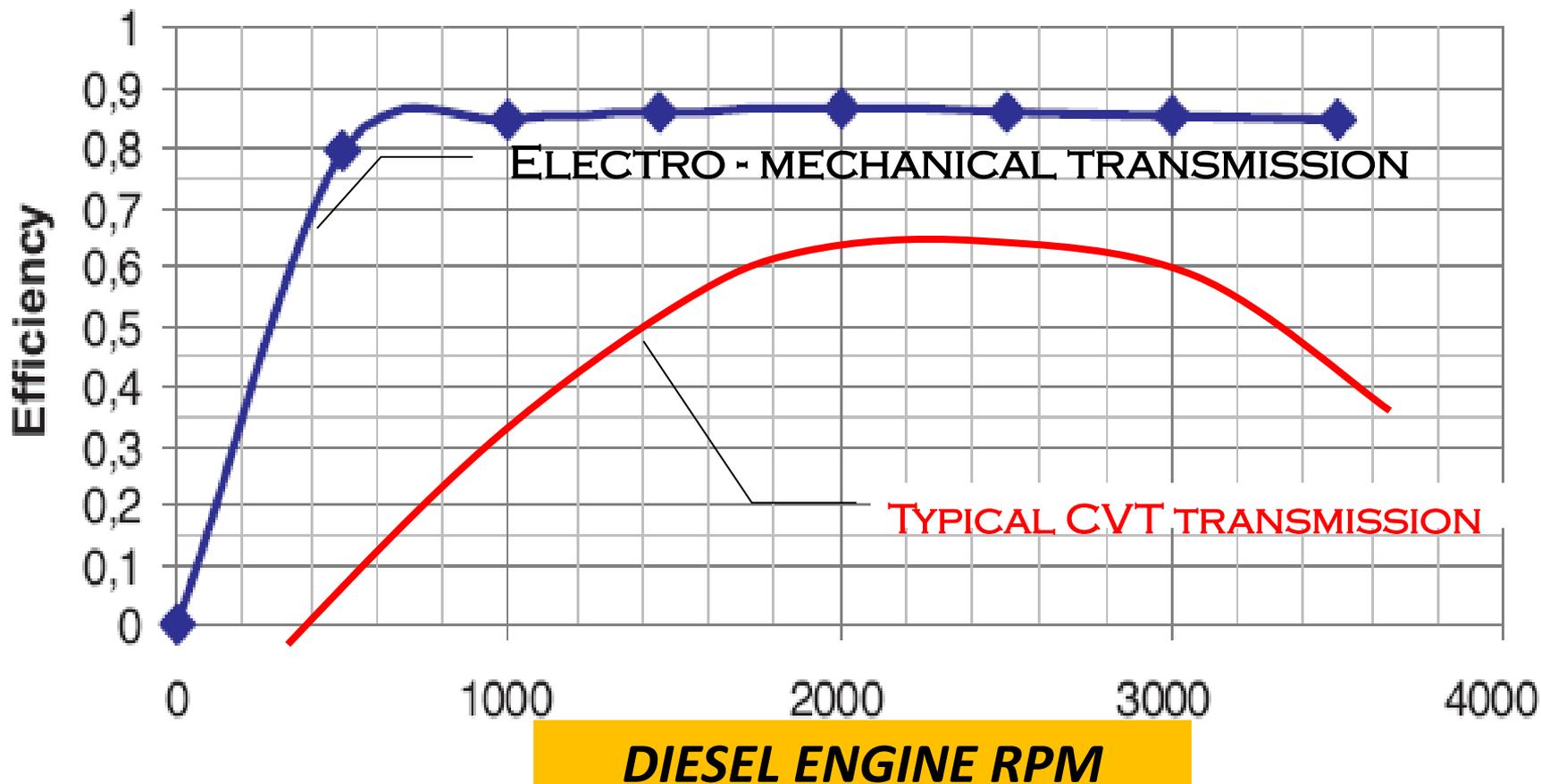
MTZ DIESEL ELECTRIC LOCOMOTIVE

PUTTING FARMERS 1st

- 15% LESS FUEL PER ACRE
- NO TRANSMISSION
- 270 kWt ELECTRIC STAND BY POWER
- YOUR OWN WINDOWS DIAGNOSTICS



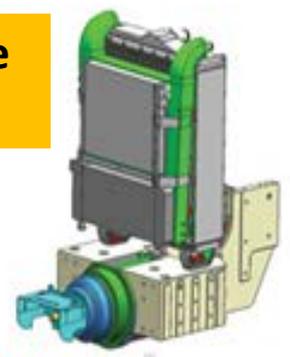
DRIVETRAIN EFFICIENCY VS DIESEL ENGINE SPEED (rpm)



Note the EM transmission high efficiency (~87%) in wide operating range!

270 kW

**Electric Drive
Front PTO**



50 kW, 1000 rev/min

**Electric power
Station**



Controller



**Indicators
and
controls**



**Windows
Service
Computer**



**Diesel Engine Reversible
Electric fan**



**Electronic
power block**



CAN

CAN

CAN

CAN



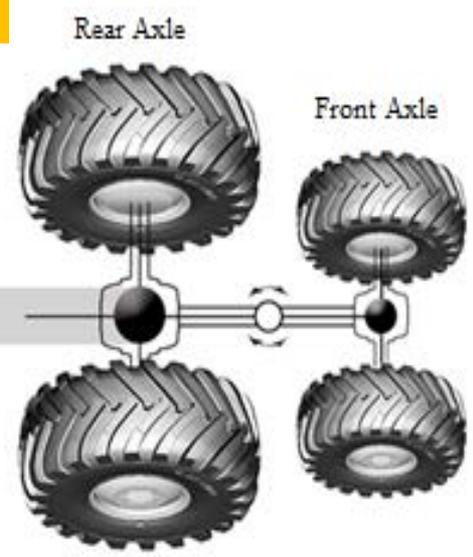
Diesel Engine



Electric Generator



Electric Motor



Rear Axle

Front Axle

MTZ 3623 FEATURES



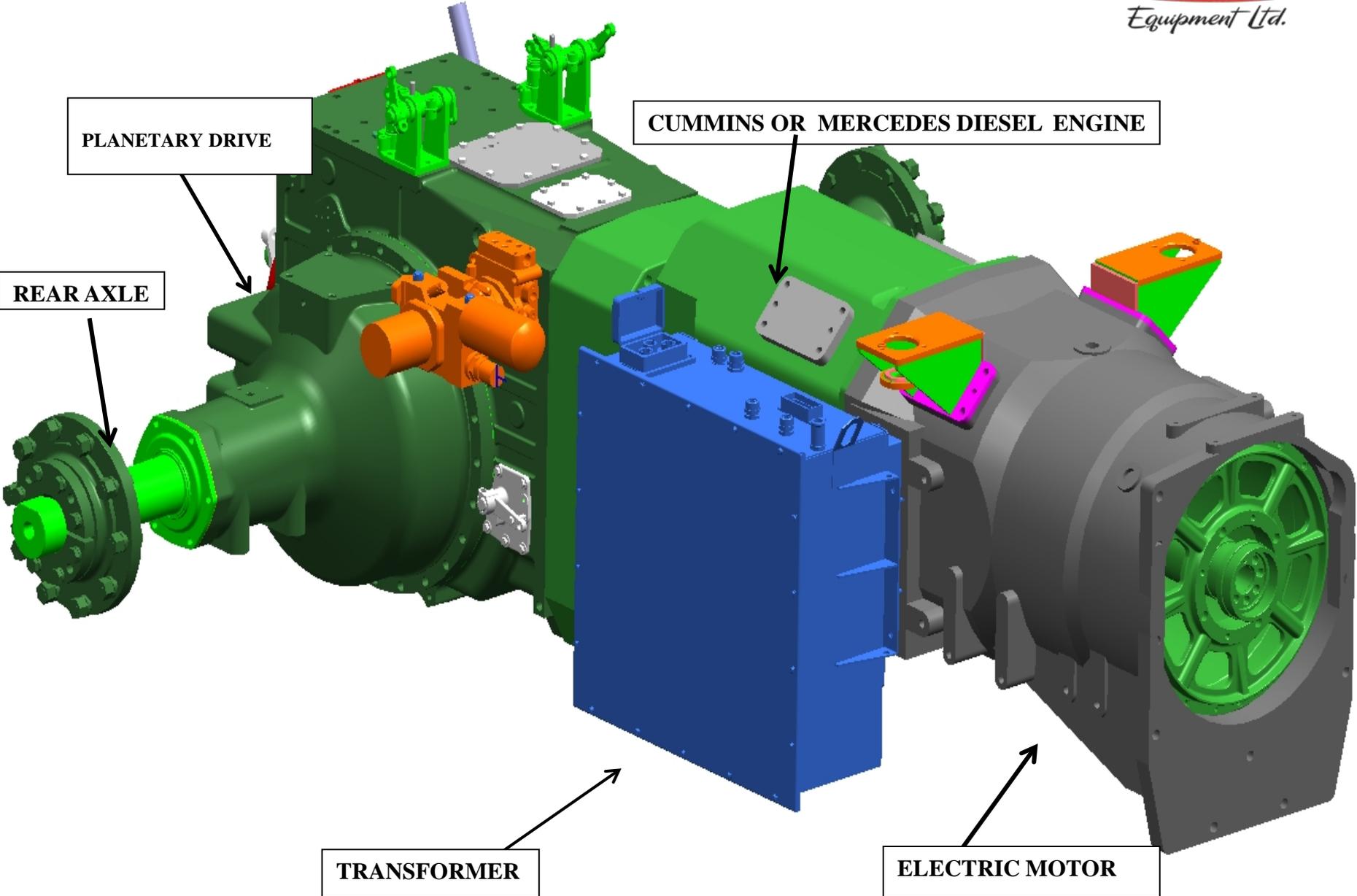
- QSL9 Cummins or OM470 Mercedes Diesel - Tier 4 Final Engines
- Reduced fuel use: 15% field work, up to 30% on road
- Increased starting and working torque
- Infinite speed selection in 2 ranges <Field .01 MPH – 11 MPH Road - 0.1 MPH – 26 (*32) MPH>
- Electric Motor Duty Cycle: 30,000-200,000 HOURS!
- Maintenance free 30,000 hours rated gear box.
- On board 270 kW power generator (drive powerful electric motors on implements)
- You own the diagnostic software - (Windows based)
- BATTERY READY – REPLACE THE DIESEL ENGINE WITH BATTERIES WHEN THE ENGINE WEARS OUT!



** Max speed no load is 32 mph – 26 mph max is recommended hauling heavy loads*

FUTURE “TESLA” OPTION

MTZ 3623 POWER TRAIN



MTZ 3623 Technical Specifications



Engine	Option 1	Option 2
Model	Mercedes OM 470	Cummins QSL9
Type	10.6 L. 6 cyl. in line	9 L. 6 cyl. In line
ENGINE HP	373 hp	360 hp
OPERATING RPM	1,700	2,100
Fuel Tank US gal (l)	132 gal. (500 L)	132 gal. (500 L)

Electric Drive Transmission	
Type	Continuous variable
Speeds	0-11,0-31 mpg (0-18, 0-50 km/hr)
Quick shuttle	Yes
Life expectancy	30,000 hours, maintenance free
Front Axle	Planetary final drives, self locking differential ,auto-positive-off-engagement
Rear Axle	Two-stage planetary final drives, differential lock with oil clutch, auto-positive-off modes
Rear PTO	1,000 rpm, 223 hp+ economy mode
Front PTO (option)	1,000 rpm, 73 hp. Electric

Hydraulics	Closed Center
3 pt. hitch lift capacity,	Front: 11,000 lb. (4,990 kg) Rear: 22,000 lb. (9,979 kg)
Pump	53 gpm. (200 L/m)
Reservoir	46 gal. (163 L/m)

Dimensions and Weights	
Front Tires	600/65 R34 Radial
Rear Tires	710/70 R42 Radial
Draw bar hitch height	22-23.6" (560-600 mm)
Drawbar hitch Category	Cat 3/4
Wheel base	10.83 ft (3,300 mm)
Turn Radius	18 ft. (5.5m)
Dimensions (LxWxH)	22.3' x 8.6' x 10.6'
Shipping Weight, lb. (kg)	26,400 lb. (12,000 kg)
Operating weight, singles lb. (kg)	28,160 lb. (12,800 kg)
Maximum weight, lb (kg)	44,000 lb. (20,000 kg)



OPTIONS

➤ **DIESEL ENG. COOLING FAN & RADIATOR**

(recommended for high duty cycle operations)

➤ **ELECTRIC DRIVE FRONT PTO – 1000 RPM**

➤ **ON BOARD STANDBY ELECTRIC POWER GENERATION – 270 kW**

➤ **FRONT CATEGORY III – 3 POINT HITCH**

➤ **TRIMBLE GPS AUTO STEER**



ELECTRIC POWER STATION



ELECTRIC POWER SPECS

- ✓ Output voltage frequency 60 ± 0.5 Hz;
- ✓ Line voltage output 3 x 400 V (circuit without ground wire);
- ✓ Output phase voltage 3 x 220 V (circuit with ground wire);
- ✓ Output voltage adjusted pre-set +5\ -10%;
- ✓ Output voltage THD factor < 5%;
- ✓ Active output power 270 kW
- ✓ Efficiency at rated load $\geq 95\%$;
- ✓ Dimensions 47.25" x 31.5" x 11.8"
- ✓ Weight 187.5 lb.
- ✓ Protection level IP65
- ✓ Easy connection to electric motors to reduce hydraulic load demand.

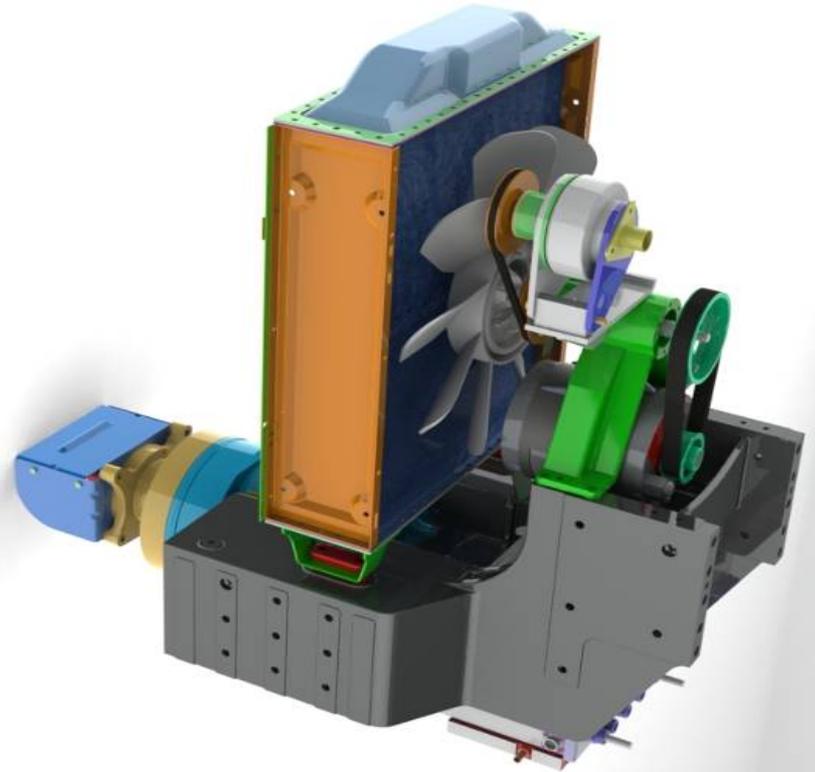


US List \$ 13,400

FRONT PTO DRIVE LESS HITCH

FRONT PTO SPECS

- ✓Power 55 kW (73 hp);
- ✓Torque on shaft 105 Nm;
- ✓Current 90 A;
- ✓Motor efficiency $\geq 93\%$;
- ✓30,000 hours rating
- ✓Maintenance free



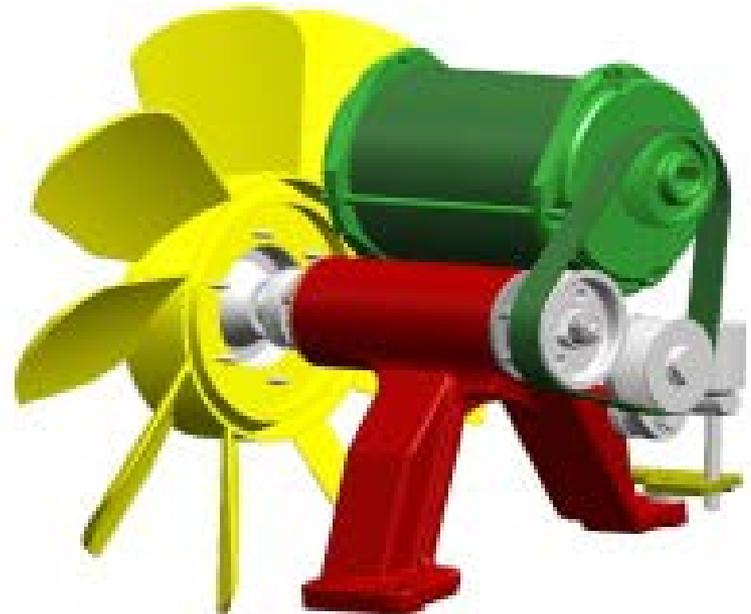
US List \$ 6,820

REVERSIBLE ENGINE COOLING FAN

REVERSIBLE FAN

SPECS

- ✓ Maximum power 20 kW;
- ✓ Motor efficiency \geq 93%;
- ✓ 30,000 hours rating
- ✓ Maintenance free



US List \$ 4,800

FRONT 3 PT. CAT III HITCH **MTZ** INCL. 1000 RPM PTO & HYDRAULIC REMOTES



Capacity: 12,000 lb. (5,000
kg)

US List \$18,920



DIESEL ELECTRIC LOCOMOTIVE ADVANTAGES



- Locomotive durability and service life.
- Simple and reliable “CVT like” transmission with fewer components.
- High efficiency (>87%) power utilization at any speed
- Electric motor acts as brake improving braking efficiency by over 200%
- Quick shuttle (forward/reverse) → effective for silage packing, snow removal etc.
- Only 1 manual switch: “field” or “road” mode
- Smooth transition from field to road.
- “CREEPER” Speed (as low as 0.1
- Pulling power same as 420hp diesel
- Battery ready! (think “Tesla”)





OPERATOR CONTROLS



SIMPLE CONVENIENT CONTROLS

- **DRIVE TRAIN CONTROL MODES:**
 - **FOOT PEDAL SPEED CONTROL**
 - **JOYSTICK SPEED CONTROL**
 - **GPS CRUISE CONTROL**

- **SLOW SPEED REVERSE CONTROL FOR SAFETY DURING IMPLEMENT CONNECTION**

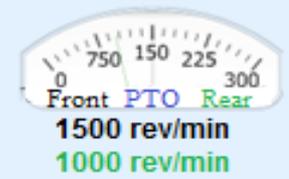
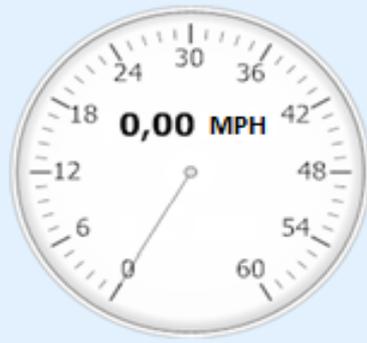
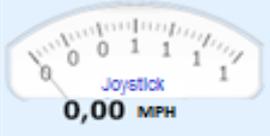
- **EXTERNAL HYDRAULIC 3 PT HITCH CONTROLS**

- **EXTERNAL FORWARD AND REAR MOVE CONTROL FOR SAFE ONE MAN HO**

- **TRIMBLE AUTO STEER (unlock extra)**



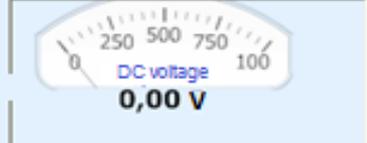
- HLC
- ICE
- CPC MG
- MG
- CPC TAM
- TAM
- PES
- GPS



- Brake 1
- Brake 2

- Overtemperature
- PC_MG
 - MG
 - PC_TAM
 - TAM
 - Diesel

- SPEED INCREASE
- SPEED REDUCTION
- EMERGENCY BRAKE
- SMOOTH ENTRANCE

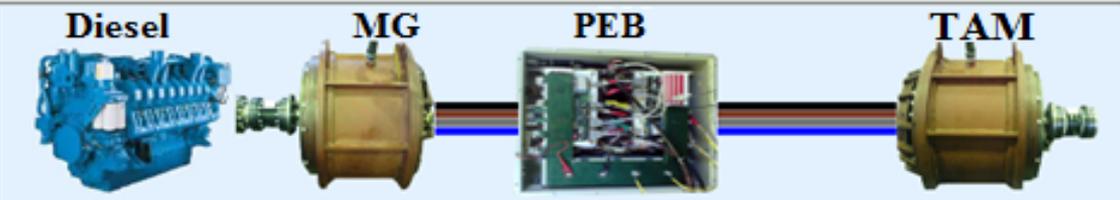


- Friction clutches
- N
 - 1
 - 2

- Zone
- Stop
 - N
 - W

- Mechanical transfer
- N
 - 1
 - 2

- READINESS
- MOD. PERMISSION
- CONTROL ON SPEED
- CONTROL ON TORQUE

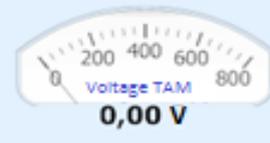


- READINESS
- MOD. PERMISSION
- CONTROL ON SPEED
- CONTROL ON TORQUE
- PARKING



Error code =	0000
Tskai (°C)=	0
Tbearing1(°C)=	0
Tbearing 2(°C)=	0
Loading (%)	0
fuel (t) =	0
Tice (°C)=	0

Error code =	0000
Tskai (°C)=	0
Tbearing1(°C)=	0
Tbearing 2(°C)=	0



MG

TAM

Нет связи Тип пакета:

WINDOWS BASED DIAGNOSTIC AND SERVICE SOFTWARE COMES STANDARD

MTZ
Equipment Ltd.



KIROVETS 455 HP 4WD ARTICULATING ELECTRIC DRIVE

COMING SOON



COMPETITIVE PRICE COMPARRISON JANUARY 2018

	TRACTOR MODEL	Rated hp	List, \$ US	Front PTO + 3pt hitch, est.	270 KwT Generator	Total, \$ US LIST
	MTZ 3623 DIESEL ELECTRIC Incl. frt, pdi and diagnostic computer	360	\$ 298,000	\$18,923	\$13,400	\$330,323
	MF 8690	340	\$315,965	\$25,000	Not available	\$340,965
	NH T8.380	347	\$360,582	\$27,849	Not available	\$388,476
	CNH MAGNUM 340 CVT	340	\$360,410	\$27,849	Not available	\$388,259
	MF/Challenger 1038	396	\$370,137	\$27,000	Not available	\$397,137
	JD 8370R	370	\$389,193	\$17,707	Not available	\$406,900
	CASE MAGNUM 380 CVT	380	\$382,418	\$27,849	Not available	\$410,267
400-420 hp competing models- same pulling power as 360 hp MTZ 3623		420	410,000	\$27,849	Not available	\$437,849

Est. Cost of Ownership over 5 years and 10,000 hours

MTZ 3623 Diesel Electric 	<i>LOCOMOTIVE</i> 	Diesel IVT or CVT
New cost, Duals, Front PTO, 3pt hitch	\$326,153	\$380,000
Resale value @ 10,000 hours	*\$140,000.00	\$200,000
100% Amortisation interest 6.25% used in calc	\$44,203	\$63,443
	Per hour costs:	
Amortisation interest/hr.	\$4.40	\$6.34
DEPRECIATION COSTS PER HOUR	\$18.60	18.00
Lubrication and Maintenance	\$5.00/hr incl. tires	\$7.25/hr incl. tires
Fuel cost, @ 70% average work load 2.90 \$/gal.	\$29.00	\$36.75
Total variable cost/hr	\$34.00	\$44.00
Cost of ownership/ hr @ 10,000 hours	\$57.00/ hr.	\$61.09/hr
NET FINANCIAL ADVANTAGE	US \$111,000	- \$

*The resale value may be higher because of the standby generator + simplicity and durability of the LOCOMOTIVE design

Electric Drive Technology – the Future of Tractors

Easter morning 1900: 5th Ave, New York City. Spot the automobile.



Source: US National Archives.

Easter morning 1913: 5th Ave, New York City. Spot the horse.



Source: George Grantham Bain Collection.

The only thing constant is change!

- 1876 Western Union refused to buy phone patents from Alexander Bell...
- In 2000 Blockbuster refused to buy Netflix for just \$50 mil.
- Around 2005, Kodak missed the market. Digital cameras rendered film obsolete.
- 2004-2007: LCD TVs overtook CRT (Cathode Ray TV) within just 4 years



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