

VERY NARROW AISLE TRUCKS

MTC SERIES 1000KG – 1500KG

FLEXIBLE SOLUTIONS,
INCREASED BUSINESS BENEFITS





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THE YALE MTC VNA SERIES

Each Very Narrow Aisle (VNA) lift truck in the MTC series has been designed with component commonality, for much simplified operational maintenance and bespoke productivity packages. They demonstrate Yale's total commitment to innovative design, comprehensive testing, high quality advanced components and superior manufacturing. The company's leadership in the materials handling sector has been achieved through extensive research among existing and prospective customers, lift truck operators and experts in ergonomics and biometrics. The Yale MTC series delivers low cost of ownership, achieved through dependability, productivity and operator comfort. Considerable investment, total commitment and extensive research ensure that every single Yale MTC lift truck represents an exceptional solution to today's materials handling requirements.



DEPENDABILITY

The Yale MTC series of lift trucks has been designed and manufactured with one aim in mind, to be the most dependable truck in the industry today. This has been achieved through significant investment in people, processes and capital equipment to deliver high quality and the two essential cornerstones of dependability:

- **Reliability** through innovative design, the highest quality and the most advanced components.
- **Durability** through superior manufacturing and comprehensive testing.



Electronics You Can Rely On

The foundation of the electrical system on all MTC trucks, is firmly based on:

- Yale's ground breaking **AC Technology Sealed Motors, electrical connectors** and Hall-effect sensors deliver superior dependability
- **CANbus** technology drives improved reliability and enhanced durability by reducing wiring by 40% and electrical connections by 75%
- For optimal performance, **CANbus** electronics provide function monitoring and diagnostic capabilities as well as continuous sensing of **speed to height to weight ratios as standard.**

Thermal Protection

Yale's innovative **thermal management system** continually monitors component temperature and makes appropriate adjustments to prevent overheating. This system features fully enclosed **passive cool motors**, which deliver exceptional air management. When combined, these systems allow Yale MTC trucks to run significantly cooler and for longer.

Hydraulics

The heavy duty, **dual motor**, electro-hydraulic system with transistor control benefits from **O-ring face seals** on high pressure hydraulic connections. This eliminates pipe fittings and thread sealants resulting in leak-free joints. The system includes a number of **patented** components supported by a superior filtration system that increases their lifespan and contributes to increased dependability.

Power Train

Total control, powerful acceleration and fast travel speeds are delivered through AC motor technology combined with **heavy-duty** transmissions. Protecting this power train is vitally important for increased **dependability**. The Power Train utilises Yale's new, highly innovative **power reversal system**. This ensures that maximum braking efficiency and dependability are achieved. As a result the heat build-up normally associated with the electromagnetic brakes which locks up the drive unit is reduced. Consequently the lift truck is brought to an efficient, controlled stop, very quickly.

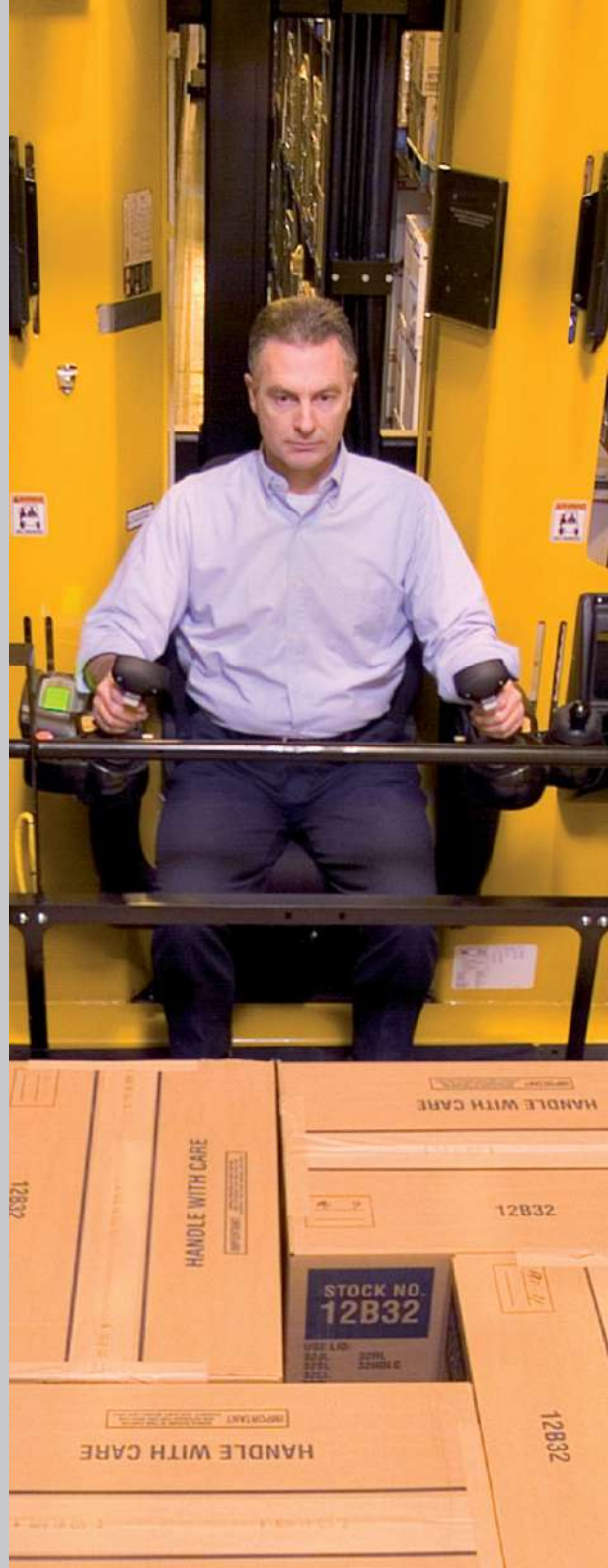


PRODUCTIVITY

Yale MTC Trucks are designed to exceed customer's specific application requirements and to ensure the **highest performance levels**. Delivering exceptional product performance leads to improved productivity and throughput and the resulting cost savings.

From **sealed AC motors**, providing fast travel speeds and powerful acceleration to **continuous speed to height to weight ratio sensing**, Yale MTC state-of-the-art technology delivers trucks with increasingly reliable performance levels. What's more, with an **exceptionally strong boxed frame** design and a stiff, heavy duty **tri-form and quad-form mast**, every facet of these trucks makes them a market leader in high density warehouse applications.

All components are designed for strength, dependability and longevity.



Simultaneous Functions

The Yale MTC patented hydraulic system offers **reduced cycle time** by allowing multiple, combined or independent hydraulic functions. This innovative new system also offers improved power management either by using the regenerated energy to increase performance levels or by increasing battery autonomy.

The Patented Hydraulic System

This is unique in three main areas:

- The main hydraulic block can combine or divide the flow of the two pump motors depending on the requirement
- The system incorporates load sensing, which allows combined movements of the trilateral attachment functions
- The pumps are bi-directional and can be used, along with the electrical circuit, to reclaim energy.

Non-intrusive Pantograph

A compact, integral, electronically adjustable pantograph allows the truck to operate in **the smallest of aisles** with maximum side clearance. This provides unparalleled performance where needed, with reduced energy consumption for outstanding productivity.



AC Motor Technology

Traction, steering and both hydraulic motors are sealed to prevent the ingress of dust or dirt, improving reliability and performance and benefit from the use of three phase, AC technology.

Mast

Yale two or three stage masts, in both tri-form and quad-form, provide exceptional mast rigidity and stability, with lift heights that can exceed 16 metres in fork height. For optimized performance, Yale MTC trucks provide continuous sensing of **speed to height to weight ratio** control, which **increases performance with lighter loads**.



LOW COST OF OWNERSHIP

The purchase price of a VNA lift truck is only a small part of its overall cost. Periodic maintenance and unscheduled repairs also impact on the overall cost of ownership. Yale engineers are **totally focused on delivering cost savings** to customers through world-class serviceability, unparalleled dependability and maximized uptime. It all adds up to **exceptional value**.

Delivering the Right Truck

Cost of ownership can also be significantly reduced by offering customers more choice to ensure that the lift truck they purchase meets their specific materials handling requirements. The Yale VNA range offers that choice. Capacities up to 1500kg, 48V or 80V machines and various chassis lengths options are just the beginning when it comes to **delivering the right truck application solution**.



LIFT TRUCK TYPE	MTC10	MTC13	MTC15
WAREHOUSE SIZE	Small	Medium / Large	Medium / Large
LOAD TYPE	Light Loads	Moderate	Heavy Loads
APPLICATION	Low Throughput	Moderate Throughput	High Performance
TRUCK USEAGE	< 12 hours	< 16 hours	24 hours
CHASSIS LENGTH 48V	3538mm	3698mm	-
	-	3818mm (LWB)	-
CHASSIS LENGTH 80V	-	3698mm	3818mm (SWB)
	-	-	3948mm (MWB)
	-	-	4143mm (LWB)

(SWB) = Short Wheel Base, (MWB) = Medium Wheel Base, (LWB) = Long Wheel Base.



Improving Uptime

Yale has significantly improved the serviceability of the **MTC series** and reduced the labour costs associated with periodic maintenance and unscheduled repairs. Yale continues to offer best-in-class service access with a one-piece, rear-opening steel hood. Simplifying daily checks and reduced service requirements result in lower maintenance costs, while brake life is significantly improved thanks to Yale's new, innovative **power reversal system**.

Integral Pantograph

This allows the truck to work with increased side clearances, further reducing the risk of product damage, increasing operating clearance in existing warehouse installations or reducing the aisles width in new build designs. Reduced product damage and increased volume utilization are key drivers for our customers in the fight to achieve lower **cost of ownership**.



ERGONOMICS

By applying best-in-class ergonomics, the Yale MTC reduces operator fatigue and improves productivity. Innovative designs including uncluttered floor space, easy access and egress and ergonomically designed controls (standard forward mounted controls, optional seat side controls), will make the MTC an operator favourite.

Seated or standing, order picking or full pallet handling, the MTC provides a secure, productive environment.



Operators Control Cabin

The large, patented operator presence foot sensor is non-intrusively positioned under the floor mat, allowing free comfortable movement, not confining the operator to a fixed position. The patented height-adjustable luxury operator's seat, with ergonomically designed high backrest and thick padding delivers real comfort. The 20 degree seat rotation, with a spring-loaded 'return to centre' facility, allows the operator a comfortable position when reversing. The fold-up seat with padding allows it to be used as a backrest when it is in the upright position and the operator standing.

Seat-side Controls

Yale's ergonomically located controls are specifically designed for operators who need to spend long periods of time in a bulk-handling environment, where a high throughput of pallet movements is demanded. As a result of the optional seat-side controls, which are adjustable in height, the operator can assume the ideal driving position with ultimate comfort and control.

Forward Mounted Controls

Each function of the truck can be controlled without needing to re-position the hands, as the proportional control gives the operator the ability to keep total control of the machine and turret head at all times. The controls couldn't be simpler as each truck function has its own proportional control, which eliminates the need to press additional buttons. Adjustable in height, angle and plane they deliver the perfect ergonomic operating position in both seated and standing positions and allow the operator to perform multiple truck movements simultaneously with the greatest of ease.



Interactive Information Display

An interactive information display is at the hub of the operator control centre, providing the operator with valuable feedback on steering wheel position, truck speed, fork height, power management and additional truck status information.

SERVICEABILITY

Yale MTC lift trucks set new standards of serviceability, not only designed to need less maintenance; they are also extremely easy to service.

From the rear-opening, one piece reinforced steel hood and on-board diagnostics, to the reliable, most comprehensive parts availability in the industry. The trucks have been designed with exceptional service in mind. Maximum access makes servicing fast, easy and efficient.



Reduced Service Requirements

Yale has reduced the regular service requirements on the MTC to 1000 hour basic maintenance intervals. Service intervals have been extended through the introduction of pressure type hydraulic filters with visual indicators, gear on gear steering and reduced electrical connections and wiring.

On-board Diagnostics

The large, interactive information display provides the operator with valuable feedback on steering wheel position, truck speed, fork height, power management and additional lift truck status information. It also communicates service codes, enabling quick and accurate repairs. Electric Truck AC Control (ETACC) is a PC-based diagnostic tool that delivers fast and accurate troubleshooting, which facilitates first-time fixes.

System Management

The Yale MTC also benefits from a CANbus vehicle management system, which continuously monitors and protects all electrical functions, assisting pre-operational checks of the electric sensors, encoders and switches providing real time system information and increased uptime.



MODEL	MTC10	MTC13	MTC15
Capacity	1000kg	1300kg	1500kg
Voltage	48V	48/80V	80V
Max Fork Height (1200mm deep pallet)	8760mm	13400mm	16100mm
Aisle Size	1650mm	1650mm	1650mm
Mast Type	Tri Form	Tri Form	Tri/Quad Form

MASTS	CHASSIS LENGTH	CONTROLS	MOTORS
Tri-form, 2 stage	3538mm	Forward multi turn steer	48V 6.5kW drive motor
Tri-form, 3 stage	3698mm	Forward RTC steer	2 x 12kW lift motors
	3818mm		
Quad-form, 2 stage	3948mm	Seat Side multi turn steer	80V 8.5kW drive motor
Quad-form, 3 stage	4143mm	Seat Side RTC steer	2 x 14kW lift motors

Note: Std = Standard, Opt = Optional.

SERVICEABILITY HIGHLIGHTS AND OPTIONS

	MTC10	MTC13	MTC13 80V & MTC15
Extended service intervals – 1000 hours basic maintenance	Std	Std	Std
Service free sealed AC motors	Std	Std	Std
Direct gear steering	Std	Std	Std
Reduced electrical connections	Std	Std	Std
Reduced wiring	Std	Std	Std
One-piece steel motor compartment cover	Std	Std	Std
Removable bumper plate	Std	Std	Std
Pull down hydraulic valve block	Std	Std	Std
On-board diagnostics with advanced dash display	Std	Std	Std
PC based diagnostics enabling fast and accurate troubleshooting	Std	Std	Std
Uncluttered layout with superb hydraulic and electrical routings	Std	Std	Std
Superior filtration system	Std	Std	Std
Sealed electrical connectors	Std	Std	Std
O-ring face seals on high pressure hydraulic connectors	Std	Std	Std
Solid-state hall effect sensors	Std	Std	Std
Bolt-on roller plates	Std	Std	Std

COST OF OWNERSHIP HIGHLIGHTS AND OPTIONS

	MTC10	MTC13	MTC13 80V & MTC 15
Sealed AC motor and controllers	Std	Std	Std
Direct gear steering	Std	Std	Std
Isolated pump controllers	Std	Std	Std
Solid-state Hall-effect sensors	Std	Std	Std
Keypad entry with password protection	Opt	Opt	Opt
Front load wheel protection	Opt	Opt	Opt
End of aisle control	Opt	Opt	Opt
Lift limit with override	Opt	Opt	Opt
Pre-height selector	Opt	Opt	Opt

VNA SERIES HIGHLIGHTS & OPTIONS

DEPENDABILITY HIGHLIGHTS AND OPTIONS

	MTC10	MTC13	MTC13 80V & MTC15
CANbus electrical system	Std	Std	Std
Sold-state Hall-effect sensors no adjustments required	Std	Std	Std
Sealed electrical connectors	Std	Std	Std
Precise wire harness routings	Std	Std	Std
O-ring face seal hydraulic fittings	Std	Std	Std
10-micron high performance pressure filter	Std	Std	Std
Thermal management system enhance cooling	Std	Std	Std
Direct gear steering	Std	Std	Std
Heavy-duty ZF GK-series transmissions	Std	Std	Std
Regenerative lowering	Std	Std	Std
Load wheel braking	Opt	Opt	Opt

PRODUCTIVITY HIGHLIGHTS AND OPTIONS

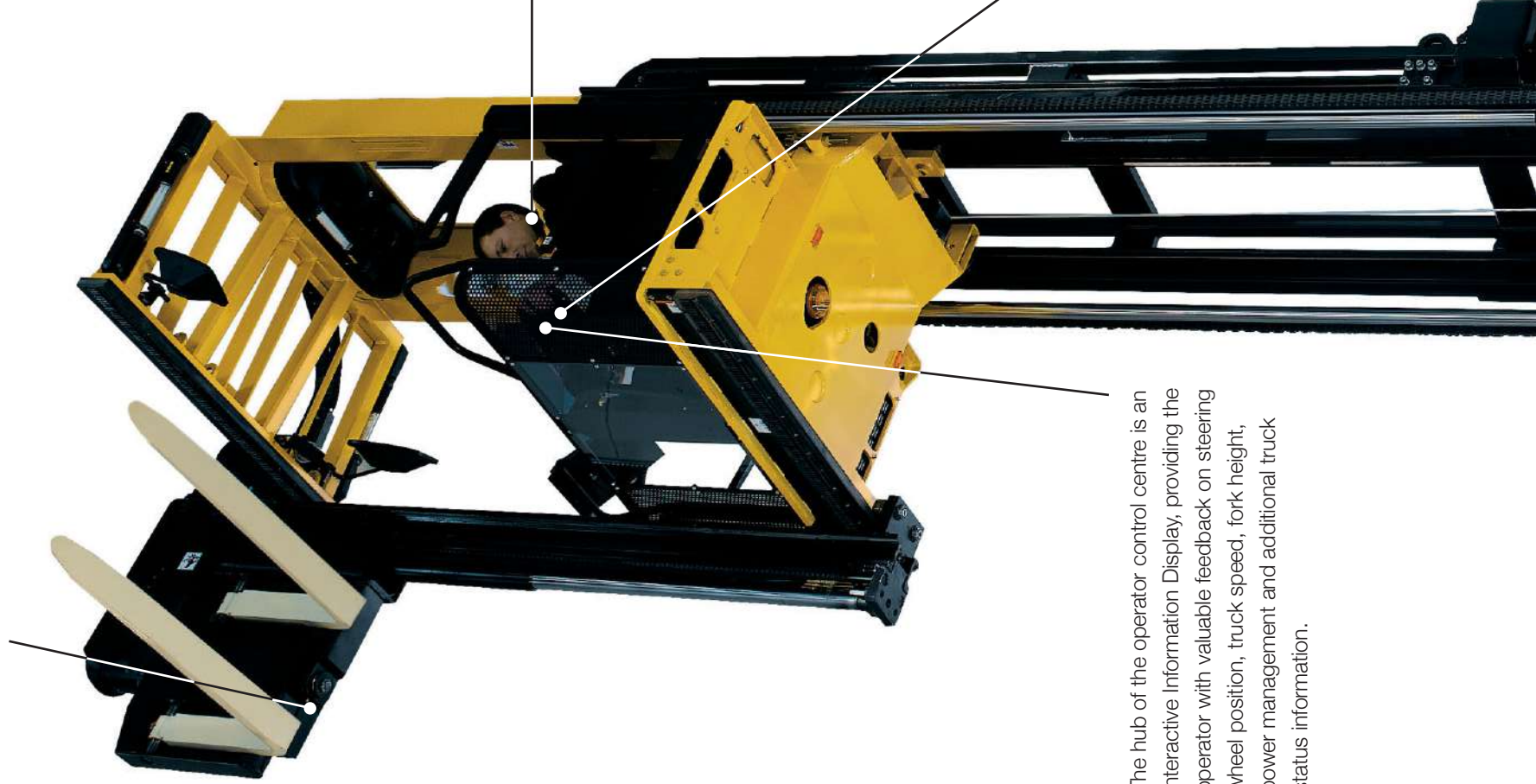
	MTC10	MTC13	MTC13 80V & MTC15
Simultaneous operation of truck functions	Std	Std	Std
Synchronised control of fork traverse and rotation	Std	Std	Std
Sealed AC motor and controllers	Std	Std	Std
Continuous height sensing	Std	Std	Std
Solid-state Hall-effect sensors	Std	Std	Std
Sealed electricity connectors	Std	Std	Std
Speed to height to weight control	Opt	Opt	Opt
Rail guidance	Opt	Opt	Opt
Wire guidance	Opt	Opt	Opt
DC/DC converter for auxiliary power	Opt	Opt	Opt
Document holder	Opt	Opt	Opt
End of aisle controls	Opt	Opt	Opt
Hydraulic fork positioner	Opt	Opt	Opt

ERGONOMIC HIGHLIGHTS AND OPTIONS

	MTC10	MTC13	MTC13 80V & MTC15
Controls adjustable in height, tilt and plane	Std	Std	Std
Soft touch electronic steering	Std	Std	Std
Low step height 435mm	Std	Std	Std
Extended foot space	Std	Std	Std
Swing up slide gates	Std	Std	Std
Soft, non-slip rubber floor mat	Std	Std	Std
Large low profile foot sensors mounted under floor mat	Std	Std	Std
Excellent mast visibility	Std	Std	Std
Rotating operators seat	Std	Std	Std
Large graphic LCD dash display	Std	Std	Std
Multi-turn steering	Std	Std	Std
Top/bottom mount attachment	Std	Std	Std
Fold up seat for standing operation	Std	Std	Std
Twin operator compartment fans	Std	Std	Std
Cabin work light	Std	Std	Std
Cabin side lights	Std	Std	Std
IR sensors for hand detection	Std	Std	Std
Seat-side controls	Opt	Opt	Opt
Drink holder and trash bin	Opt	Opt	Opt
Dual mirrors	Opt	Opt	Opt
Return to centre steering	Opt	Opt	Opt
Lexan screen on overhead guard	Opt	Opt	Opt
Full width Lexan front screen	Opt	Opt	Opt

VNA SERIES HIGHLIGHTS

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The hub of the operator control centre is an Interactive Information Display, providing the operator with valuable feedback on steering wheel position, truck speed, fork height, power management and additional truck status information.

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Tri-form and quad-form heavy duty two or three stage masts provide exceptional mast rigidity and stability, with lift heights that exceed 16 metres fork height.

Continuous sensing provides **speed to height to weight ratio** control, which increases performance with lighter loads.

AC Technology Sealed Motors, electrical connectors and Hall-effect sensors deliver superior dependability. Traction, steering and both hydraulic motors are sealed to prevent the ingress of dust or dirt, improving reliability and performance and benefit from the use of three-phase, AC technology.

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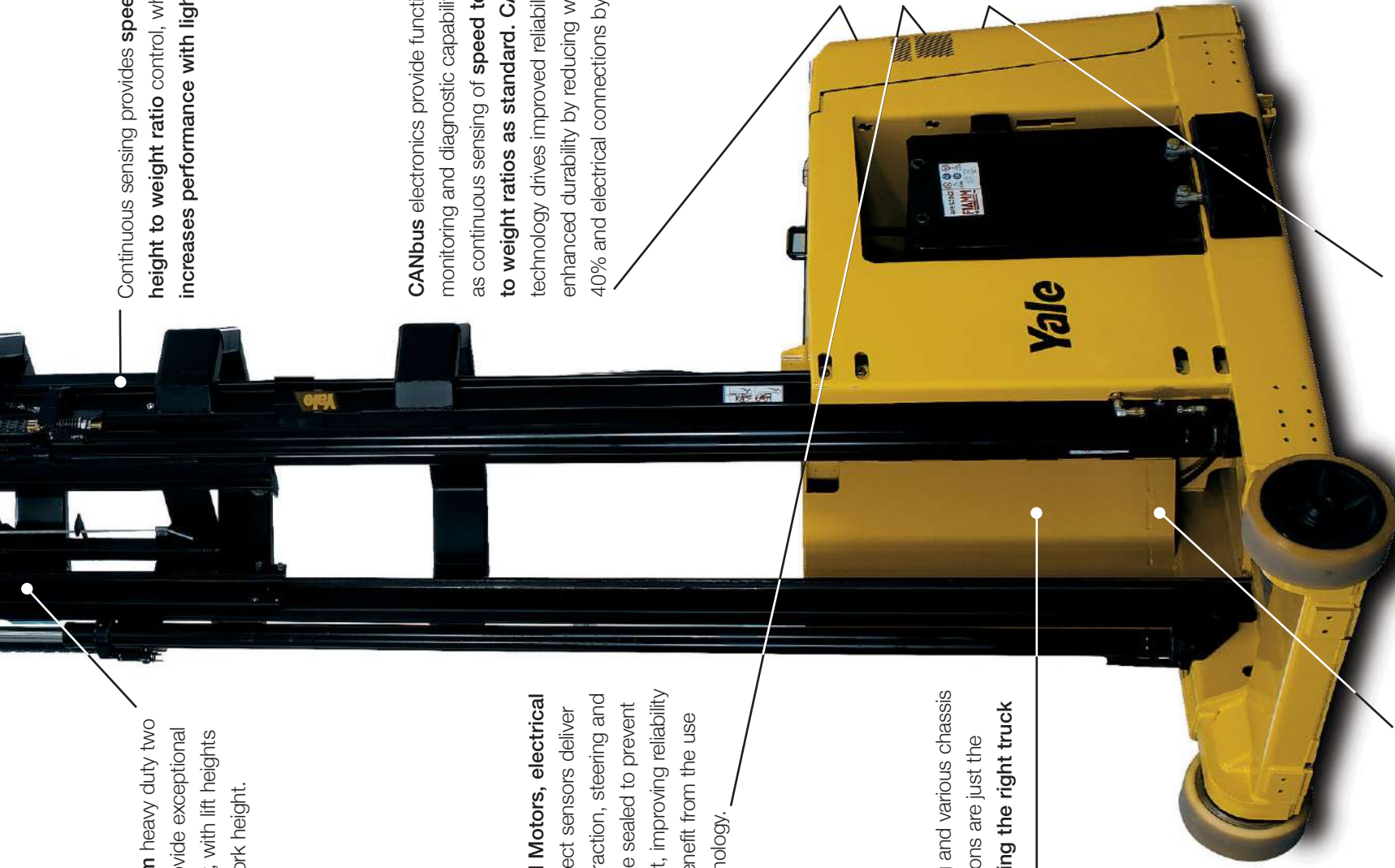
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Patented Hydraulic System

Unique in three main areas:


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- The hydraulic pumps are bi-directional and can be used, along with the electrical circuit, to reclaim energy.



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