

4,000 lbs

Yale® motorized hand trucks combine the latest in state-of-the-art technology and ergonomics making Yale the leader for masted walkie applications.

Controls

Travel direction and speed are selected by rotating the actuator in the desired direction of travel. The butterfly throttle control provides multiple grip positions minimizing operator fatigue. The stationary portion of the handle minimizes wrist movement and provides a solid grip while maneuvering the truck. This assures additional stability while driving the truck. The bottom-mounted tiller handle optimizes the operating position.

Lift, Lower and Horn push-buttons are conveniently located on the handle. Right hand push-buttons provide variable speed lift/lower for accurate load placement. Left hand push-buttons are used to control either single speed lift/lower or an optional side-shifter.

The **Traction Reversing Switch** located on top of the handle simultaneously reverses truck direction and sounds the horn should it come in contact with the operator. The wrap around design provides protection through the full range of handle movement. This switch is reset when the direction control is returned to neutral or the handle is moved to the brake “on” position.

The **Creep Speed** button is located on the control handle and allows the truck to be operated at speeds of less than 1 mph (1.6 km/h), even with the handle in the vertical position. This allows for precise maneuvering in close locations.

Electrical System

The electrical system utilizes SEM technology with integral hoist control. Separately Excited Motor (SEM) provides the ability to control the traction motor fields and armature independently. This results in enhanced performance and battery efficiency. In combination with the Metal Oxide Semiconductor Field Effect Transistor (MOSFET) motor controller we have reduced wearable components, eliminated forward/reverse contactors and improved performance. The SEM control system provides higher top speeds when loaded and improved acceleration. Variable regenerative braking occurs when the throttle control is reversed. Regenerative braking improves traction motor brush life. The controller has an Auto Deceleration System to decelerate the truck as the butterfly throttle is moved toward the neutral position. The controller senses when the truck is stopped and automatically applies the brake. The Auto Deceleration System reduces the need to manually apply a service brake for slow down. The controller has a programmable setup including parameters for acceleration, auto deceleration and top travel speed. Diagnostic information can be read using a hand-held programmer tool or by looking at the status of the LED indicator mounted on the controller. A solid-state circuit is used to control the pump motor and eliminates the lift contactor.

User Selectable Performance Modes

The operator has a choice of three pre-programmed performance modes that are selectable through the tiller handle. These modes alter the acceleration, deceleration and top speed of the truck.

- Mode 1 – Economy mode (battery saver)
 - Soft acceleration; reduced top travel speed with auto deceleration adjusted to a high level

- Mode 2 – Performance with auto deceleration
 - Medium acceleration; reduced top travel speed with auto deceleration adjusted to a high level
- Mode 3 – Performance with minimum auto deceleration
 - High acceleration; high top travel speed with auto deceleration adjusted to a minimum level

Adjustable performance modes enable the operator to optimize the performance of the truck to the particular work environment or the work cycle. The operator can select the desired mode using the controls on the handle. In addition, an optional “custom performance” mode is available and can be configured by your local Yale Dealer.

Traction System

The traction system consists of the traction motor, gearbox, and brake. The UL approved traction motor with premium brushes and Class H insulation provides maximum thermal protection. The innovative gear box design incorporates maintenance-free steer bearings, a stationary mounted traction motor, integrated motor pinion, and drive axle string guard. The maintenance-free steer bearings are sealed within the gearbox housing and lubricated by the gear oil. The stationary traction motor eliminates power cable tension and flex. The integral pinion and support bearings optimize the gear mesh resulting in a quieter gearbox. The splined coupling allows for quick removal and installation of the traction motor. The drive axle string guard minimizes axle seal damage from shrink-wrap, banding, etc.

The spring applied, electrically released brake is on top of the traction motor for ease of inspection and maintenance. The brake is controlled by a handle position switch which prevents the truck from moving when the tiller handle is fully raised or fully lowered.

Hydraulic Components

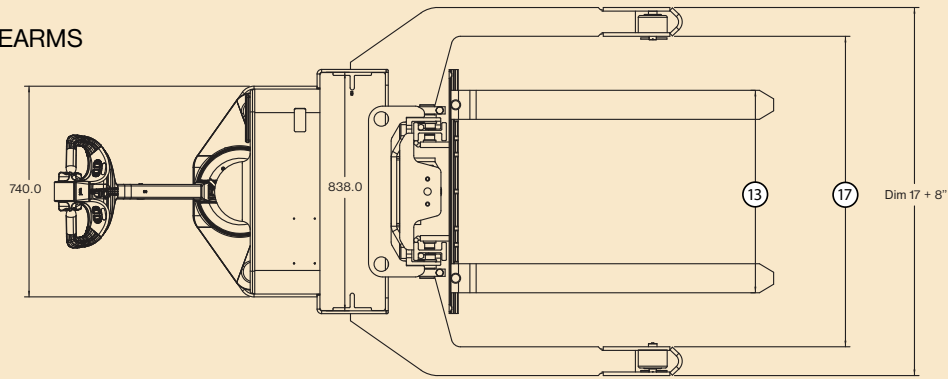
The high performance hydraulic system is designed for high cycle, multi-shift operations. The hydraulic power pack features a series wound motor and translucent hydraulic

(continued on back)



Truck shown with optional equipment

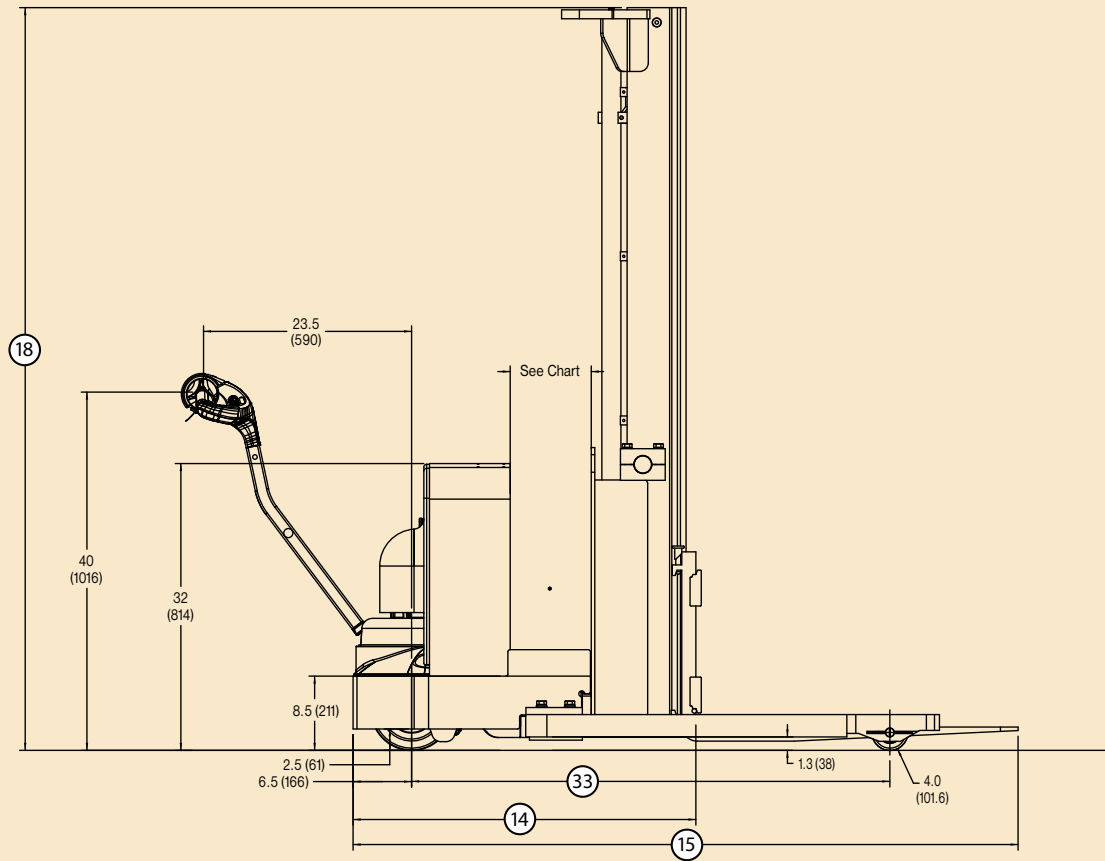
MSW040F
FIXED BASEARMS



GENERAL	1	Manufacturer			Yale®
	2	Model Designation			MSW040-E
	3	Rated Capacity		lb. (kg)	4000 (1814)
	4	Load Center		in. (mm)	24 (610)
	5	Power			Battery - 24 Volt
	6	Operation			Pedestrian
	7	Tire Type, Cushion, Solid, Pneumatic, etc.			Cushion
	8	Wheels, Drive / Load			1 / 2
DIMENSIONS	9	Standard Mast - Lift Height (TOF)		in. (mm)	122.0 (3098)
	10	Standard Free Lift (TOF)		in. (mm)	6.0 (152)
	11	Carriage Width - Maximum		in. (mm)	33.7 (857)
	12	Forks, Width / Thickness / Length		in. (mm)	3.9 / 1.8 / 42.0 (100 / 45 / 1067)
	13	Fork Spread (Outside Dimension - Maximum)		in. (mm)	30.4 (773)
	14	Length to Face of Forks	8.0" Battery Compartment	in. (mm)	N/A
		Length to Face of Forks	9.0" Battery Compartment	in. (mm)	43.8 (1111)
		Length to Face of Forks	13.5" Battery Compartment	in. (mm)	48.3 (1226)
	15	Overall Length with 42" Forks	8.0" Battery Compartment	in. (mm)	N/A
		Overall Length with 42" Forks	9.0" Battery Compartment	in. (mm)	85.8 (2179)
		Overall Length with 42" Forks	13.5" Battery Compartment	in. (mm)	90.3 (2294)
	16	Outrigger Type, Adjustable / Fixed			Fixed
	17	Outrigger Dimension, Inside Dimension		in. (mm)	43.0 (1092)
	18	Overall Lowered Height (OALH)		in. (mm)	83.0 (2109)
	19	Maximum Fork Height (MFH)		in. (mm)	122.0 (3098)
20	Turning Radius, Minimum Outside		in. (mm)	82.6 (2098)	
21	Right Angle Stack			See Chart	
22	Equal Intersecting Aisle			See Chart	
23	Stability (comply with ANSI)*			Yes	
PERF.	24	Travel Speed - Maximum	No Load / Rated Load	mph (kph)	3.6 / 3.2 (5.8 / 5.1)
	25	Lifting Speed	No Load / Rated Load	fpm (m/s)	27.5 / 18.6 (0.14 / 0.09)
	26	Lowering Speed	No Load / Rated Load	fpm (m/s)	60.0 / 80.0 (0.30 / 0.41)
WEIGHTS	27	Gradeability		%	10.0
	28	Truck Weight (approximate) Without Battery	No Load	lb. (kg)	2458 (1115)
	29	Axle Loading - Drive (Static w/Min. Wt. Battery)	No Load	lb. (kg)	1735 (787)
WHEELS & TIRES	30	Axle Loading - Load Wheel (Static w/Min. Wt. Battery)	No Load	lb. (kg)	1323 (600)
	31	Drive Tire	Size / Type	in.	10.0 x 5.0 Poly
	32	Load Wheel	Size / Type	in.	4.0 x 2.8 Poly
	33	Wheelbase	8.0" Battery Compartment	in. (mm)	N/A
		Wheelbase	9.0" Battery Compartment	in. (mm)	59.0 (1499)
		Wheelbase	13.5" Battery Compartment	in. (mm)	63.6 (1615)
	34	Ground Clearance, Lowest Point	No Load	in. (mm)	0.5 (13)
35	Ground Clearance, Center of Wheelbase	No Load	in. (mm)	2.0 (51)	
BATT.	36	Type			Lead Acid
	37	Ampere Hours - Maximum			510
	38	Minimum Weight		lb. (kg)	600 (272)
MOTORS	39	Traction Motor - 60 Minute Rating		hp (Kw)	2.3 (1.7)
	40	Pump Motor - S3 Rating		hp (Kw)	4.0 (3.0)
	41	Traction Motor Control Method			Transistor
	42	Number of Speeds			Infinitely Variable
	43	Relief Pressure for Attachments		psi (kPA)	2900 (19995)
	44	Grade Clearance	8.0" Battery Compartment	%	N/A
		Grade Clearance	9.0" Battery Compartment	%	13.9
	Grade Clearance	13.5" Battery Compartment	%	12.8	

Above specifications, unless otherwise listed, are for a standard truck without optional equipment. Right Angle Stack and Equal Intersecting Aisle are calculated using a 40" wide pallet.

MSW040F
SIDE VIEW



RIGHT ANGLE STACK

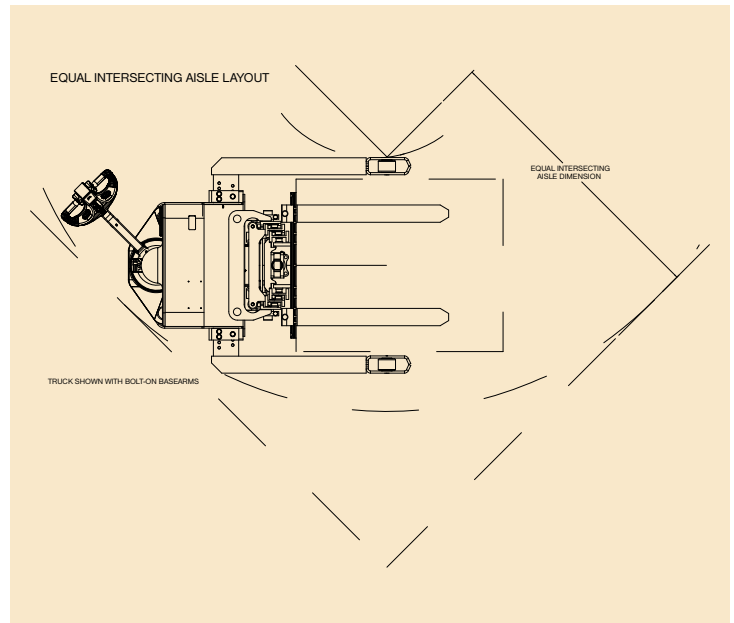
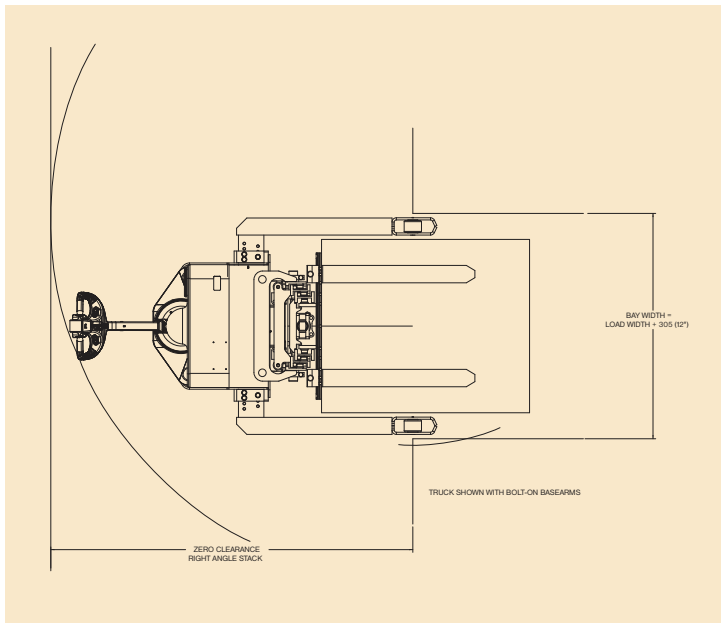
4000 lb. with 13.5" BC

Load Width	Without Creep Mode			With Creep Mode			
	Load Length			Load Width	Load Length		
	36	40	48			36	40
36	87.6	95.3	95.3	36	72.5	80.1	80.1
40	90.3	96.1	96.1	40	75.4	81.0	81.0
48	91.2	96.9	96.9	48	76.4	82.0	82.0

INTERSECTING AISLE LAYOUT

4000 lb. with 13.5" BC

Load Width	Without Creep Mode			With Creep Mode			
	Load Length			Load Width	Load Length		
	36	40	48			36	40
36	69.0	68.0	70.0	36	61.0	60.0	62.0
40	72.0	71.0	73.0	40	64.0	63.0	65.0
48	72.0	74.0	76.0	48	64.0	66.0	68.0



tank. The series wound motor provides high torque, low noise and is easily serviceable. The translucent tank provides quick and easy inspection of hydraulic oil level. Fully proportional lift/lower controls provide smooth operation while reducing noise levels.

Mast, Carriage and Forks

The Yale mast is available in simplex and triplex configurations for various heights. Yale Hi-Vis triplex masts provide outstanding visibility through the mast assembly. Mast is constructed of widespread outer channels and nested inner sections. Mast channels are specially rolled fine-grain steel. Wrap around cross-member and cross-braces provide added support for channels. Roller pressures are minimized through use of widely spaced shimless load rollers. Side-thrust adjustment is accomplished without special tools or mast disassembly. The simplex mast has a single-acting Yale-made hoist cylinder mounted between mast channels. Triplex masts employ two hoist cylinders mounted behind mast channels, and a third free-lift cylinder for steady lifting. Hoist cylinder rods are hard-chrome plated for durability. Cylinders are mounted on floating mounts that help prevent cylinder wear. Lowering speeds are

controlled by a valve in the manifold block. Controlled descent is assured by velocity fuses in each cylinder base. Hook-type carriage readily accepts attachments. Forks are heat treated, forged steel with increased thickness in critical heel section.

Wheels and tires

The standard load wheel configuration is a single load wheel with two roller bearings. A "knock-out" axle provides for quick and easy maintenance. The load wheel compound is 92 durometer polyurethane molded over a steel wheel and measures 4" X 2.8".

A 10" X 5" diameter polyurethane drive tire is standard. The drive wheel is secured to the axle with 5 bolts.

Additional Features

- Lubrication - Fill and drain plugs are provided
- All frame lubricating points are equipped with high pressure grease fittings
- Battery connector - Standard is red 175 amp connector
- Standard equipment includes key switch and an electronic horn
- 48" load backrest

Options

- Multi-function display with BDI, hour meter and fault light
- Cold storage/freezer package to -15°F
- Sideshifter (2" each side of center)
- Various mast heights
- Lexan mast shield
- Creep speed control
- Various fork lengths
- Keyless toggle ignition switch
- 4" X 2.8" tandem load wheels
- Battery rollers (11.4" from floor to top of rollers)
- Optional batteries

Truck performance may be affected by the condition of the vehicle, how it is equipped and the application. Consult your Yale Industrial Truck Dealer if any of the information shown is critical to your application. Specifications are subject to change without notice.

This truck meets all design specifications of ANSI B56.1 Safety Standard for Powered Industrial Trucks at the time of manufacture. Classified by Underwriters' Laboratories, Inc. as to fire hazard only.

The Yale products included in this document may be covered by US patent 6,684,148 and other patents pending.

Yale and the Yale Logo are trademarks or registered trademarks of Yale Material Handling Corporation in the United States and other countries.

BATTERY SPECIFICATIONS

Battery Type	Number of Cells	Cell Size	Plates per Cell	Capacity 6 Hour Rate amp hr (kwh)	Battery Dimensions			Weight lb. (kg)
					"X"	"Y"	"Z"	
					in. (mm)	in. (mm)	in. (mm)	
4000 lb Model								
Industrial	12	75	7	225 (5.2)	25.7 (653)	8.8 (224)	23.3 (592)	540.0 (245)
	12	85	7	255 (6.0)	25.7 (653)	8.8 (224)	23.3 (592)	570.0 (259)
	12	75	11	375 (8.7)	26.5 (673)	13.0 (330)	23.3 (592)	825.0 (374)
	12	85	11	425 (9.9)	26.1 (663)	12.8 (325)	23.3 (592)	865.0 (392)
	12	75	13	450 (10.5)	30.9 (785)	13.0 (330)	23.3 (592)	987.0 (448)
	12	85	13	510 (11.9)	30.9 (785)	13.0 (330)	23.3 (592)	1035.0 (469)
Battery Connector: 175 Amp, Red				Battery Lead: Length 20" (508 mm), Position "B", 1/0 AWG				

STANDARD LIFT SPECIFICATIONS

Model MSW040-F	Overall Lowered Ht. in (mm)	Fork Height Top of Forks in (mm)	Free Lift in (mm)	Overall Ht. w/LBR in (mm)	Overall Ht. w/o LBR in (mm)
2 Stage LFL	72 (1829)	100 (2540)	6 (152)	148 (3760)	119.5 (3036)
	77 (1956)	110 (2794)	6 (152)	158 (4014)	129.5 (3290)
	83 (2109)	122 (3098)	6 (152)	170 (4318)	141.5 (3595)
	87 (2210)	130 (3302)	6 (152)	178 (4522)	149.5 (3798)
	92 (2337)	140 (3556)	6 (152)	188 (4776)	159.5 (4052)
3 Stage FFL	72 (1829)	153 (3886)	48 (1219)	201 (5106)	172.5 (4382)
	77 (1956)	168 (4267)	53 (1346)	216 (5487)	187.5 (4763)
	83 (2109)	186 (4724)	59 (1498)	234 (5944)	205.5 (5220)



Yale Materials Handling Corporation
P.O. Box 7367, Greenville, North Carolina 27835-7367

2546-6 3/08

©2008 Yale Materials Handling Corporation
All rights reserved. Printed in U.S.A.

Manufactured in our own ISO 9001:2000 Registered Facilities