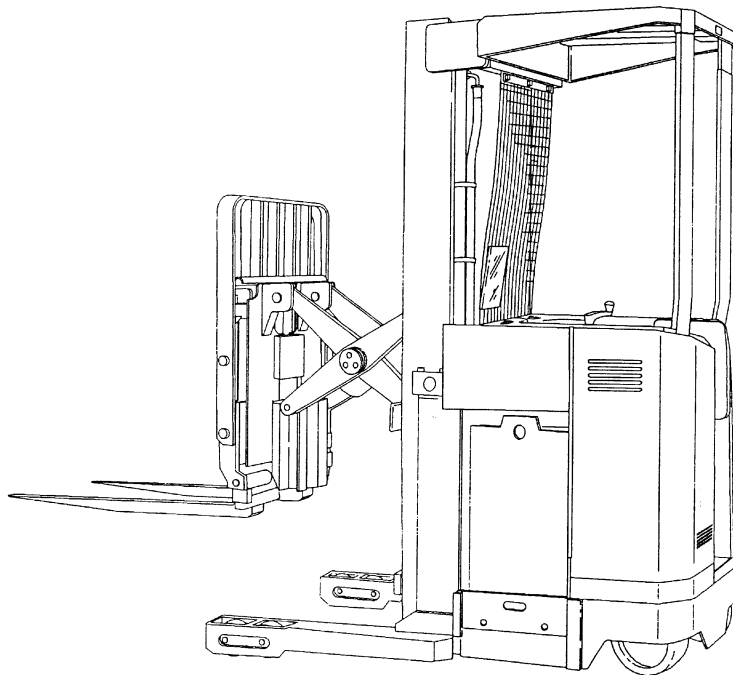


CAPACITIES AND SPECIFICATIONS

N25XMDR3, N30-40XMR3 [C470];
N50XMA3 [C471];
N30XMDR3, N45XMR3 [G138];
N30XMADR3, N45XMAR3 [B264]



HM210523

HYSTER

TABLE OF CONTENTS

SEM Traction Motor Controllers Factory Values and Min/Max Ranges	1
Lift Capacities	2
Articulation Adjustment.....	2
Master Drive Unit Specifications.....	3
Oil Capacities	3
Lubrication Specifications	3
Hydraulic Systems Specifications	4
Reach Carriage Specifications.....	4
Battery Size Specifications	5
Tire Sizes	6
Fuses.....	6
Steering Pump Specifications.....	6
Hydraulic Control Valve/Relay Coil Resistance Values	7

This section is for the following models:

N25XMDR3, N30-40XMR3 [C470];
N50XMA3 [C471];
N30XMDR3, N45XMR3 [G138];
N30XMXDR3, N45XMXR3 [B264]

SEM Traction Motor Controllers Factory Values and Min/Max Ranges

Menu Display	Function Description		Battery Volts	Factory Value	Min/Max Values Allowed	Units of Measure
M3 BRAKE C/L M2 BRAKE C/L M1 BRAKE C/L	Brake Current Limit	N30-40XMR3, N25XMDR3, N50XMA3	24	320	100 to 450	Amps
		N40XMR3, N25XMDR3, N50XMA3	36	280		
		N45XMR3, N30XMDR3	36	280		
NOTE: Changes made to the BRAKE C/L settings may necessitate changes to the TAPER RATE setting below to ensure smooth operation when plugging to a stop or transitioning from one direction to the other.						
M3 NEUT BRK % M2 NEUT BRK % M1 NEUT BRK %	Neutral Braking Level		24 36	30	0 to 100	% of Regen C/L
M3 ACCEL RATE	M3 Acceleration Ramp Rate	N30-40XMR3, N25XMDR3, N50XMA3	24	1.3	0.1 to 5.0	Seconds
		N40XMR3, N25XMDR3, N50XMA3	36	1.3		
		N45XMR3, N30XMDR3	36	1.3		
M2 ACCEL RATE	M2 Acceleration Ramp Rate	N30-40XMR3, N25XMDR3, N50XMA3	24	2.3	0.1 to 5.0	Seconds
		N40XMR3, N25XMDR3, N50XMA3	36			
		N45XMR3, N30XMDR3	36			
M1 ACCEL RATE	M1 Acceleration Ramp Rate	N30-40XMR3, N25XMDR3, N50XMA3	24	3.3	0.1 to 5.0	Seconds
		N40XMR3, N25XMDR3, N50XMA3	36	3.3		
		N45XMR3, N30XMDR3	36	3.5		
TAPER RATE	End Regen Taper Rate	N30-40XMR3, N25XMDR3, N50XMA3	24	25	1 to 64	1/32 second
		N40XMR3, N25XMDR3, N50XMA3	36	10		
		N45XMR3, N30XMDR3	36	25		
NOTE: Changes made to the TAPER RATE setting may necessitate changes to the BRAKE C/L settings above to ensure smooth operation when plugging to a stop or transitioning from one direction to the other.						
M3 MAX SPEED	M3 Speed Limit	N30-40XMR3, N25XMDR3, N50XMA3	24	100	25 to 100	% of Throttle
		N40XMR3, N25XMDR3, N50XMA3	36			
		N45XMR3, N30XMDR3	36			
M1 = TURTLE M2 = MID M3 = RABBIT						

(More Content includes: Brake system, Capacities, and specifications, Frame, Hydraulic, System, Industrial battery, Main control, Valve, Mast repair, Fasteners, Schematics diagrams, Steering axle, Steering system, Wire harness repair And more)

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Menu Display	Function Description		Battery Volts	Factory Value	Min/Max Values Allowed	Units of Measure
M2 MAX SPEED	M2 Speed Limit	N30-40XMR3, N25XMDR3, N50XMA3	24	100	25 to 100	% of Throttle
		N40XMR3, N25XMDR3, N50XMA3	36			
		N45XMR3, N30XMDR3	36			
M1 MAX SPEED	M1 Speed Limit	N30-40XMR3, N25XMDR3, N50XMA3	24	65	25 to 65	% of Throttle
		N40XMR3, N25XMDR3, N50XMA3	36			
		N45XMR3, N30XMDR3	36			
M1 = TURTLE M2 = MID M3 = RABBIT						

Lift Capacities

	N25XMDR3	N30XMR3 N30XMDR3	N40XMR3	N45XMR3	N50XMA3
Basic* Capacity at 609.6 mm (24.0 in.) load center	1133.98 kg (2500.00 lb)	1360.78 kg (3000.00 lb)	1814.37 kg (4000.00 lb)	2041.17 kg (4500.00 lb)	2267.96 kg (5000.00 lb)
Basic** Capacity at 500.0 mm (19.7 in.) load center	1250.00 kg (2755.78 lb)	1500.00 kg (3306.93 lb)	2000.00 kg (4409.25 lb)	2250.00 kg (4960.40 lb)	2500.00 kg (5511.56 lb)
<p>*Reach (N30XMR3, N40XMR3, N45XMR3, N25XMDR3, and N30XMDR3)</p> <ul style="list-style-type: none"> • Three-stage Vista free-lift mast with 5385 mm (212 in.) maximum fork height • Three-stage Vista free-lift mast with 1079 mm (42 in.) maximum fork height • 1320 mm (52 in.) base width • Minimum battery compartment width • Minimum battery weight <p>**Straddle (N50XMA3)</p> <ul style="list-style-type: none"> • Three-stage Vista free-lift mast with 5562 mm (219 in.) maximum fork height • 1320 mm (52 in.) base width • Minimum battery compartment width • Minimum battery weight 					

Articulation Adjustment

Stop Setting	Maximum Fork Height	
	Below 6147 mm (242 in.)	6147 mm (242 in.) and Above
Drive Side	4.8 to 6.4 mm (0.19 to 0.25 in.)	1.5 to 3.2 mm (0.060 to 0.125 in.)
Caster Side	4.8 to 6.4 mm (0.19 to 0.25 in.)	4.8 to 6.4 mm (0.190 to 0.250 in.)

Master Drive Unit Specifications

Wheel Nut Torque	Cross Pattern to 136 N•m (100 lbf ft)
Pinion Nut Torque	54 N•m (40 lbf ft)
Bearing Mount Capscrews	Cross Pattern to 34 N•m (25 lbf ft), then to 68 N•m (50 lbf ft)
Motor Mount Capscrews	Cross Pattern to 20 N•m (15 lbf ft)

Oil Capacities

Master Drive Unit	
Truck Models	Capacity
N30XMR3, N40XMR3, N25XMDR3, N50XMA3 (Hurth HFK 300)	2.6 liter (2.7 qt)
N45XMR3, N30XMDR3 (Hurth HFK 400)	3.7 liter (3.9 qt)
N30XMR3, N40XMR3, N25XMDR3, N50XMA3 (GK-20)	2.5 liter (2.6 qt)
N45XMR3, N30XMDR3 (GK-25)	3.7 liter (3.9 qt)
Brake System	
Truck Models	Capacity
All Models	0.45 liter (0.48 qt)
Hydraulic Tank	
Battery Compartment Size	Oil Tank Capacity to Full Mark
317.5 mm (12.5 in.)	21.4 liter (22.6 qt)
370.8 mm (14.6 in.)	24.1 liter (25.5 qt)
421.6 mm (16.6 in.)	24.1 liter (25.5 qt)
447.7 mm (18.8 in.)	28.2 liter (29.8 qt)
535.9 mm (21.1 in.)	28.2 liter (29.8 qt)
Hydraulic System + Tank Capacity 4.0 liter (4.2 qt) in lines	

Lubrication Specifications

Lubrication Type	Application	
	Standard	Freezer/Arctic
Hydraulic Oil	ISO VG 46 Antiwear (HCE-140)	Exxon Univis® HVI 26
Grease	Multipurpose (Lithium Complex) Grease	Mobilgrease® 28 Synthetic Extra-Protection Grease
Gear Oil	80W-90 (GL-5) Conventional Gear Oil	75W-90 (GL-5) Synthetic Gear Oil
Antiseize	Antiseize Lubricant (MIL-A-706)	Antiseize Lubricant (MIL-A-706)

Hydraulic Systems Specifications

	N30-40XMR3 and N50XMA3	N45XMR3 and N30XMDR3	N45XMR3 and N30XMDR3
Lift Pump			
Maximum Output	14.00 cm ³ /rev (0.85 in. ³ /rev)	22.00 cm ³ /rev (1.34 in. ³ /rev)	19.00 cm ³ /rev (1.16 in. ³ /rev)
Maximum Pressure	8.4 MPa (1200 psi)	8.4 MPa (1200 psi)	8.4 MPa (1200 psi)
Speed	1500 to 3000 RPM	1500 to 3000 RPM	1500 to 3000 RPM
Steering Pump			
Maximum Output	6.000 cm ³ /rev (0.366 in. ³ /rev)	6.000 cm ³ /rev (0.366 in. ³ /rev)	6.000 cm ³ /rev (0.366 in. ³ /rev)
Maximum Pressure	8.4 MPa (1200 psi)	8.4 MPa (1200 psi)	8.4 MPa (1200 psi)
Speed	1500 to 3000 RPM	1500 to 3000 RPM	1500 to 3000 RPM
Relief Valve Pressures			
Lift System	19.6 MPa (2800 psi)	19.6 MPa (2800 psi)	19.6 MPa (2800 psi)
Operating Range	18.9 to 20.3 MPa (2700 to 2900 psi)	18.9 to 20.3 MPa (2700 to 2900 psi)	18.9 to 20.3 MPa (2700 to 2900 psi)
Auxiliary Functions System	15.1 MPa (2200 psi)	15.1 MPa (2200 psi)	15.1 MPa (2200 psi)
Range	14.8 to 15.5 MPa (2150 to 2250 psi)	14.8 to 15.5 MPa (2150 to 2250 psi)	14.8 to 15.5 MPa (2150 to 2250 psi)
All measurements made when the hydraulic oil temperature is 38 to 66°C (100 to 150°F)			

Reach Carriage Specifications

Scissor Arms	
End Cap Capscrews	41 N•m (30 lbf ft)
Inner Thrust Washer Capscrews	39 N•m (29 lbf ft) Apply Loctite® 242 to Threads
Reach Cylinder Torques	
Rod End Capscrews	34 N•m (25 lbf ft)
Tilt Cylinder Torques	
Rod Nut	Tighten nut to 33.9 N•m (25.0 lbf ft), then back nut off 2 turns.
Reach Mechanism Strokes	
Single	610.00 ±6.40 mm (24.00 ±0.25 in.)
Dual	1067.00 ±6.40 mm (42.00 ±0.25 in.)
Reach Cylinder Strokes	
24 in. Reach	105.00 mm (4.13 in.)

42 in. Reach	95.00 mm (3.74 in.)
Sideshift Cylinder Stroke	180.00 mm (7.09 in.)
Tilt Cylinder Stroke	36.00 mm (1.40 in.)
Fork Tilt Angle	
Down	3 degrees
Up	4 degrees

Battery Size Specifications

Model	Volts	Minimum Compartment Size Length × Width	Battery Size*		Weight	
			Minimum/Maximum		Minimum	Maximum
			Length	Width		
N30XMR3, N40XMR3, N25XMDR3, and N50XMA3	24	986.0 × 318.0 mm (38.8 × 12.5 in.)	986.0 mm (38.8 in.)	311.10 mm (12.25 in.)	568 kg (1250 lb)	863 kg (1900 lb)
		986.0 × 371.0 mm (38.8 × 14.6 in.)	986.0 mm (38.8 in.)	365.00 mm (14.38 in.)	681 kg (1500 lb)	953 kg (2100 lb)
		986.0 × 422.0 mm (38.8 × 16.6 in.)	986.0 mm (38.8 in.)	416.00 mm (16.38 in.)	726 kg (1600 lb)	1033 kg (2277 lb)
N40XMR3, N25XMDR3, and N50XMA3	36	986.0 × 371.0 mm (38.8 × 14.6 in.)	986.0 mm (38.8 in.)	365.00 mm (14.38 in.)	704 kg (1550 lb)	953 kg (2100 lb)
		986.0 × 422.0 mm (38.8 × 16.6 in.)	986.0 mm (38.8 in.)	416.00 mm (16.38 in.)	840 kg (1850 lb)	1090 kg (2400 lb)
N45XMR3, N30XMDR3, N45XM XR3, and N30XMXDR3	36	986.0 × 422.0 mm (38.8 × 16.6 in.)	986.0 mm (38.8 in.)	416.00 mm (16.38 in.)	840 kg (1850 lb)	1090 kg (2400 lb)
		986.0 × 478.0 mm (38.8 × 18.8 in.)	986.0 mm (38.8 in.)	473.00 mm (18.62 in.)	999 kg (2200 lb)	1294 kg (2850 lb)
		986.0 × 536.0 mm (38.8 × 21.1 in.)	986.0 mm (38.8 in.)	530.00 mm (20.88 in.)	1135 kg (2500 lb)	1362 kg (3000 lb)

Compartment width is across the width of the lift truck. Battery length installed across lift truck, battery width installed front to back.

*Maximum height for all batteries is 787.0 mm (31.0 in.).



WARNING

The battery must fit the battery compartment so the battery restraint system will operate correctly. Use the spacers designed by the Hyster® Company to prevent the battery from moving more than 13.0 mm (0.5 in.) in any horizontal direction.

NOTE: Maximum tolerances are +0.0 and -13.0 mm (+0.0 and -0.5 in.) for the size of the battery compartment. The battery specification chart shows the maximum size tolerances that will permit the battery to still fit into the battery compartment.

Tire Sizes

Model	Drive/Steer Tires	Caster Wheels	Load Wheels
ALL	12.0 × 5.5 × 8.0 Low Profile Rubber Plain Tread	8 × 2 Polyurethane Dual Articulating	5 × 3 Polyurethane Tandem Articulating
ALL	12.0 × 5.5 × 8.0 Polyurethane Plain Tread	8 × 2 Polyurethane Dual Articulating	5 × 4 Polyurethane Tandem Articulating

Fuses

Fuse	Circuit	Rating
FU 1	Traction	325 Amp
FU 2	Lift Pump	400 Amp
FU 3	Power Steering/Auxiliary Pump	125 Amp
FU 4	Battery Input to Dash Display	1 Amp
FU 5	Key Switch to Control Wiring Circuits	10 Amp
FU 6	Horn	10 Amp
FU 7	Operator Compartment Lamp and Fan	10 Amp
FU 8	RF/Accessories Terminal	10 Amp

Steering Pump Specifications

Pump Relief Valve Setting	8.40 ±0.35 MPa (1200 ±50 psi)
Hydraulic Steering Pump Flow Rate	11.7 liter/min (3.1 gal/min) at 2000 RPM
Rated Flow for the Hoist Pump for the 24-Volt Lift Trucks	26.8 liter/min (7.1 gal/min) at 2000 RPM
Rated Flow for the Hoist Pump for the 36-Volt Lift Trucks	42.4 liter/min (11.2 gal/min) at 2000 RPM
Hoist Relief Valve Setting	19.60 ±0.70 MPa (2800 ±100 psi)
Auxiliary Relief Valve Setting	16.80 ±0.35 MPa (2400 ±50 psi)

Hydraulic Control Valve/Relay Coil Resistance Values

Coil	Location	Manufacturer	Coil Resistance @ 21°C (70°F)	Test Points
LIFT/LOWER Coil	Hydraulic Control Valve	HydraForce Inc.	20 ±4 ohms	Coil Leads
LOWER Holding Coil			20 ±4 ohms	Coil Leads
Aux Metering Coil			39 ±4 ohms	Coil Leads
AUX UP (Auxiliary Up) and AUX DOWN (Auxiliary Down) Coils			39 ±4 ohms	Coil Leads
ER (Enable Relay) Coil	Contactor Panel	Robert Bosch Corp.	305 ±15 ohms	Terminal #85 and Terminal #86
		Potter & Brumfield Co.	360 ±35 ohms	
HMR (Hourmeter Relay) Coil (EE trucks only)	Drive Unit Compartment	Robert Bosch Corp.	305 ±15 ohms	Terminal #85 and Terminal #86
		Potter & Brumfield Co.	360 ±35 ohms	
SS (Sideshift) Coil	Extend Assembly	HydraForce Inc.	39 ±4 ohms	Coil Leads
EX (Reach) Coil	Extend Assembly	HydraForce Inc.	39 ±4 ohms	Coil Leads
Tilt Coil	Extend Assembly	HydraForce Inc.	39 ±4 ohms	Coil Leads
P (Lift Pump)	Drive Unit Compartment	Albright	15 ±2 ohms	Coil Leads
PS (Power Steering)	Contactor Panel	Albright	52 ±4 ohms	Coil Leads
Traction	Contactor Panel	Albright	17 ±2 ohms	Coil Leads

