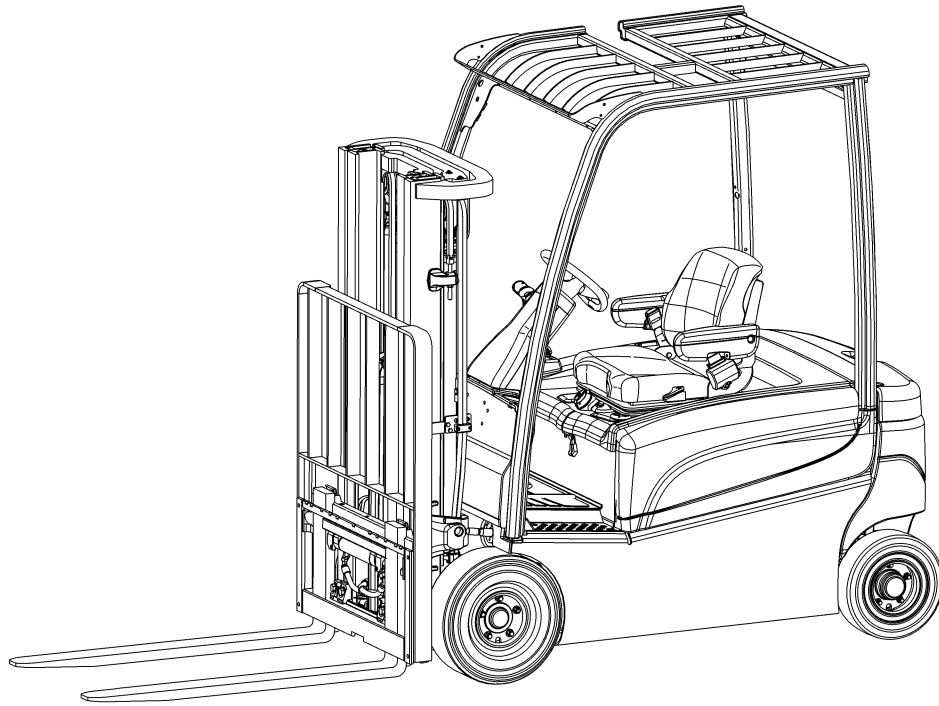


CAPACITIES AND SPECIFICATIONS

J1.6-2.0XN [A935]



HYSTER

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This section is for the following models:

J1.6-2.0XN [A935]

General

Model	Wheel Base	Grade Clearance	Turning Radius	Right Angle Aisle Clearance ¹
J1.6XN	1431.0 mm (56.3 in.)	28%	1654.0 mm (65.1 in.)	3380.0 mm (133.1 in.)
J1.8XN	1431.0 mm (56.3 in.)	28%	1654.0 mm (65.1 in.)	3375.0 mm (132.9 in.)
J1.6XN	1539.0 mm (60.6 in.)	26%	1762.0 mm (69.4 in.)	3488.0 mm (137.3 in.)
J1.8XN	1539.0 mm (60.6 in.)	26%	1762.0 mm (69.4 in.)	3483.0 mm (137.1 in.)
J2.0XN	1539.0 mm (60.6 in.)	26%	1762.0 mm (69.4 in.)	3483.0 mm (137.1 in.)

¹Equipped with two-stage mast and carrying a 1200 mm (47.2 in.) long × 800 mm (31.5 in.) wide load.

Specifications	
Maximum Gross Vehicle Weight (With Battery)	3650 kg (8047 lb)
Counterweight	670 kg (1477 lb)
Maximum Load	2000 kg (4410 lb)

Lubrication Specifications

Lubrication Area	Application	
	Standard	Freezer/Food Processing
Hydraulic System	ISO VG 46 Antiwear Hydraulic Oil	Oil Freezer Exxon Unavis (HVI-26)
Brake Master Cylinder	Dexron III Transmission Fluid	Dexron III Transmission Fluid
Steering System Fluid	ISO VG 46 Antiwear Hydraulic Oil (Drawn from Hydraulic Tank)	Oil Freezer Exxon Unavis (HVI-26) (Drawn from Hydraulic Tank)
Grease	Multipurpose (Lithium Complex) Grease with 2 to 4% Molybdenum Disulfide	Multipurpose (Lithium Complex) Grease with 2 to 4% Molybdenum Disulfide
Lift Chains and Sheaves	SAE 10W-30	SAE 10W-30
Operator Controls	Silicone Spray Lubricant	Silicone Spray Lubricant

Hydraulic System

Hydraulic Pump		
Displacement	17 cc/rev	
Operating Temperature	0 to 80°C (32 to 176°F)	
Filtration	10 Micron Nominal	
Max Pressure	18.1 MPa (2611 psi)	
Max Peak Pressure	20.6 MPa (2902 psi)	
Hydraulic Lift Motor	48 Volt DC Motor	
Power	12 kW (16 hp)	
Speed	600-3000 RPM	
Thermal Rating	S3 = 15%	S3 = 15%
Insulation	Class "F"	
Hydraulic System	Manual Hydraulic Valve	Electric Hydraulic Valve
Main Relief Pressure	18.0 ±0.52 MPa (2610 ±75 psi)	17.9 ±0.52 MPa (2596 ±75 psi)
Secondary Relief Pressure	18.0 ±0.52 MPa (2610 ±75 psi)	15.5 ±0.52 MPa (2248 ±75 psi)
Tank Capacity (To Full Mark)	19.9 liter (21 qt)	
System Capacity	21.0 liter (22.2 qt)	

Steering System

System Specifications		
Steering System		
Normal Operating Temperature	48 to 60°C (118 to 140°F)	
Steer Tire Angle		
	Left-Hand Steer Angle	Right-Hand Steer Angle
Left-Hand Spindle	103°	77°
Right-Hand Spindle	77°	103°
No. of Turns on Steering Wheel; Steering Lock to Lock with Zero travel speed	5 1/2	
Steering Relief Current	48V	
	15A ±5A	
Open Center Pressure	0.345 ±0.103 MPa (50.04 ±14.94 psi)	
Open Center Current	1.8A ±0.75A	
Steering Time (unloaded, static)	2.32 ±1.0 Sec	
¹ Refers to anti-kickback check valve. Anti-cavitation check valve is not adjustable.		

System Specifications	
Steering Control Unit ¹	
Displacement	70 cc
Relief Valve	7.5 ±0.25 MPa (1100 ±36 psi)
*Hydraulic Pump Motor	
Voltage	48 Volts DC
Speed	1850 RPM
Output	0.80 kW (1.07 HP)
Displacement	4.23 cm ³ /rev (.258 in. ³ /rev)
¹ Refers to anti-kickback check valve. Anti-cavitation check valve is not adjustable.	
*Hydraulic pump motor provides fluid flow for steering demands for lift trucks covered in this service manual.	

Tire Sizes

Model	Drive					
	Tire			Wheel		
	Size	Description	Quantity	Size	Description	Quantity
J1.6-1.8XN	18 × 7 - 8	Snap-On Solid Pneumatic	2	4.33R-8	SIT	2
	18 × 7 - 8	Snap-On Solid Pneumatic Non-Marking	2	4.33R-8	SIT	2
J2.0XN	200/50-10	Snap-On Solid Pneumatic	2	6.50F-10	SIT	2
	200/50-10	Snap-On Solid Pneumatic Non-Marking	2	6.50F-10	SIT	2

Model	Steer					
	Tires			Wheel		
	Size	Description	Quantity	Size	Description	Quantity
J1.5-2.0XN	15 × 4.5 - 8	Snap-On Solid Pneumatic	2	3.00D-8	SIT	2
	15 × 4.5 - 8	Snap-On Solid Pneumatic Non-marking	2	3.00D-8	SIT	2

Torque Specifications

ELECTRICAL

Brake Pressure Sensor

23 to 28 N•m (204 to 248 lbf in)

Load Weight Sensor

37 N•m (27 lbf ft)

Motor Controller Power Cables

13 to 15 N•m (115 to 133 lbf in)

Vehicle Systems Manager to Mounting Bracket

19 N•m (168 lbf in)

STEERING SYSTEM

Steering Cylinder to Steering Axle

130 N•m (95 lbf ft)

Steering Control Unit Fittings

30 ±3 N•m (22 ±2 lbf ft)

Steering Control Unit Capscrews

30 ±3 N•m (22 ±2 lbf ft)

HYDRAULIC SYSTEM

Hydraulic Pump Fitting (Supply)

98 to 110 N•m (72 to 81 lbf ft)

Hydraulic Pump Fitting (Return)

151 to 166 N•m (111 to 122 lbf ft)

MANUAL HYDRAULIC CONTROL VALVE

Tie Rod Nuts

18 to 20 N•m (159 to 177 lbf in)

Fitting, Inlet Section

16 N•m (142 lbf in)

Main Relief Valve

27 N•m (20 lbf ft)

Manual Lowering Valve

26 N•m (19 lbf ft)

Tilt Relief Valve

26 N•m (19 lbf ft)

Spool Lock Solenoid

7 N•m (66 lbf in)

Section Retaining Stud Nuts

20 to 27 N•m (177 to 239 lbf in)

E-HYDRAULIC CONTROL VALVE

Tie Rod Nuts

19 to 22 N•m (168 to 195 lbf in)

Jam Nuts

7 to 11 N•m (62 to 97 lbf in)

Fitting, Inlet Section

16 N•m (142 lbf in)

Compensator Plug

47 N•m (35 lbf ft)

Main Relief Valve

27 N•m (20 lbf ft)

Pilot Cartridge

65 N•m (48 lbf ft)

Plug, Lift Section

27 N•m (20 lbf ft)

Manual Lowering Valve

54 N•m (40 lbf ft)

Port Option Plug

54 N•m (40 lbf ft)

Plug, Tilt Section

27 N•m (20 lbf ft)

Tilt Relief Valve

27 N•m (20 lbf ft)

TRANSAXLE

Transaxle to Frame

220 N•m (162 lbf ft)

Fixing Plate and Disc Carrier to Spur Gear

70 N•m (52 lbf ft)

Wheel Lug Nuts

170 N•m (125 lbf ft)(Lubed)

Ring Gear to Transaxle Housing

70 N•m (52 lbf ft)

Oil Fill Plug

22 N•m (195 lbf in)

Oil Drain Plug

22 N•m (195 lbf in)

Oil Check Plug

22 N•m (195 lbf in)

Retainer Cap Bolts

35 N•m (26 lbf ft)

Brake Line Port Fitting

12 to 16 N•m (106 to 195 lbf in)

Mast Speeds

Model	Voltage	Mast	Lowering M/Sec (F/Min)		Lifting M/Sec (F/Min)	
			No Load	Rated Load	No Load	Rated Load
J1.6XN	48V	Two-Stage LFL	N/A	N/A	N/A	N/A
		Two-Stage FFL	N/A	N/A	N/A	N/A
		Three-Stage FFL	0.50 m (98 ft)	0.53 m (104 ft)	0.58 m (114 ft)	0.45 m (89 ft)
	48V	Two-Stage LFL - C661	N/A	N/A	N/A	N/A
		Two-Stage FFL - C663	N/A	N/A	N/A	N/A
		Three-Stage FFL - C662	0.50 m (98 ft)	0.53 m (104 ft)	0.58 m (114 ft)	0.45 m (89 ft)
J1.8XN	48V	Two-Stage LFL - C661	N/A	N/A	N/A	N/A
		Two-Stage FFL - C663	N/A	N/A	N/A	N/A
		Three-Stage FFL - C662	0.50 m (98 ft)	0.53 m (104 ft)	0.58 m (114 ft)	0.40 m (79 ft)
J2.0XN	48V	Two-Stage LFL	N/A	N/A	N/A	N/A
		Two-Stage FFL	N/A	N/A	N/A	N/A
		Three-Stage FFL	0.50 m (98 ft)	0.53 m (104 ft)	0.58 m (114 ft)	0.40 m (79 ft)

LFL = Limited Free Lift

FFL = Full-Free Lift

N/A = Not Available

Oil temperature 43 to 54°C (110 to 130°F).

Freezer truck lift speed to be checked at temperature -18 to -29°C (0 to -20°F).

Lifting and lowering speeds with valve fully open ± 3% acceptable.

Maximum Carriage and Tilt Creep Rates

Measure with mast vertical and rated load at 2.5 m (8.2 ft) high and with the lift, tilt, and auxiliary control levers in neutral position.

Hydraulic Oil Temperature	Maximum Vertical Creep at Carriage		Maximum Tilt Creep		
			Mast Angle	Cylinder Stroke	
	mm/Min	in/Min	Deg/Min	mm/Min	in/Min
20°C (68°F)	N/A	N/A	N/A	N/A	N/A
30°C (86°F)	N/A	N/A	N/A	N/A	N/A
40°C (104°F)	N/A	N/A	N/A	N/A	N/A
50°C (120°F)	10.0	0.375	0.50	N/A	N/A
60°C (140°F)	N/A	N/A	N/A	N/A	N/A

Tilt Angles

Lift truck should be on level ground and in unloaded condition.

NOTE: Tilt speeds (all masts) with hydraulic oil at 50°C (122°F) and freezer oil at 24 ±5°C (75 ±5°F)

NOTE: Tilt drift must not exceed 0.50° in 1 minute with hydraulic oil at 49°C (120°F).

Table 1. Tilt Angles

Mast Type	Forward	Back	Tilt Speed (Max.)	Time (Sec.)
Two-Stage LFL	*10°	5°	3.5 to 6.0	
	5°	5°	2.0 to 4.0	
Two-Stage FFL	*10°	5°	3.5 to 6.0	
	5°	5°	2.0 to 4.0	
Three-Stage FFL	*10°	5°	3.5 to 6.0	
	5°	5°	2.0 to 4.0	

*10° Forward is an optional feature
LFL = Limited Free-Lift mast
FFL = Full Free-Lift mast

Transaxle Assembly

Function	Specification
Traction Motor	
Voltage	48 Volts AC
Speed	1950 rpm
Power	5.00 kW (6.71 hp)
Stator Resistance	10.0 ±0.10 ohms
Gear Ratio	26.6:1
Drive Wheel Load (Max.)	2860 kg (6305 lb)
Fluid Type	Dexron III Transmission Fluid
Fluid Capacity	0.50 liter (0.53 qt)
Brake Specifications	
Torque at Axle	220 N•m (162 lbf ft)
Hold on Grade (Rated Load)	15% Grade

Travel Speeds

Model	Voltage	Extended Shift	Maximum Travel Speed			
			No Load		Full Load	
			kph	mph	kph	mph
J1.6XN	48	ON	14.5	9.0	14.5	9.0
		OFF	16.0	9.9	16.0	9.9
J1.8XN	48	ON	14.5	9.0	14.5	9.0
		OFF	16.0	9.9	16.0	9.9
J2.0XN	48	ON	14.5	9.0	14.5	9.0
		OFF	16.0	9.9	16.0	9.9

Battery

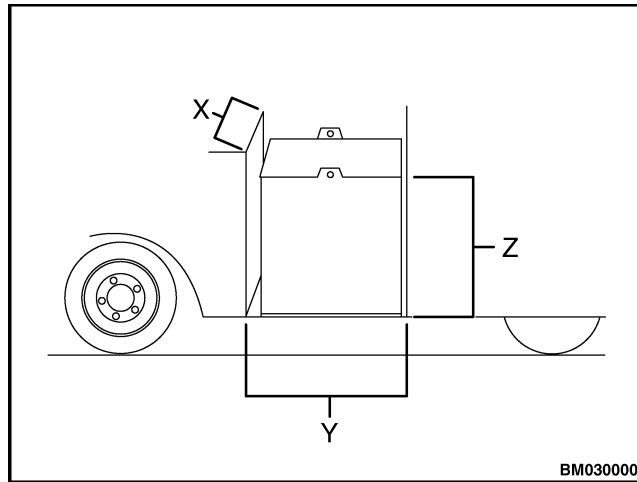


Figure 1. Battery Compartment Dimensions

Battery Compartment Dimensions ¹						
Model	Wheel Base	Width (X)	Length (Y)	Height (Z)		
				NMHG Custom Battery	DIN Drop-in Battery	DIN Side REM Battery
J1.6XN and J1.8XN	1431.0 mm (56.3 in.)	991 mm (39 in.)	642.0 mm (25.3 in.)	677.0 mm (26.7 in.)	643.0 mm (25.3 in.)	643.0 mm (25.3 in.)
J1.6XN, J1.8XN and J2.0XN	1539.0 mm (60.6 in.)	991 mm (39 in.)	750.0 mm (29.5 in.)	677.0 mm (26.7 in.)	643.0 mm (25.3 in.)	643.0 mm (25.3 in.)

¹Measurement with acid plate and appropriate counterweight/spacer installed.

Battery Discharge Rate ¹				
Model	Wheel Base	Type	Max Amp Hours	Max kW Hours
			48 V	48 V
J1.6XN and J1.8XN	1431.0 mm (56.3 in.)	DIN	575	27.6
		DIN	625	30.0
		NMHG Custom	625	30.0
		NMHG Custom	750	36.0
J1.6XN, J1.8XN and J2.0XN	1539.0 mm (60.6 in.)	DIN	690	33.1
		DIN	750	36.0
		NMHG Custom	690	33.1
		NMHG Custom	750	36.0

¹Calculated using 5-hour rate.

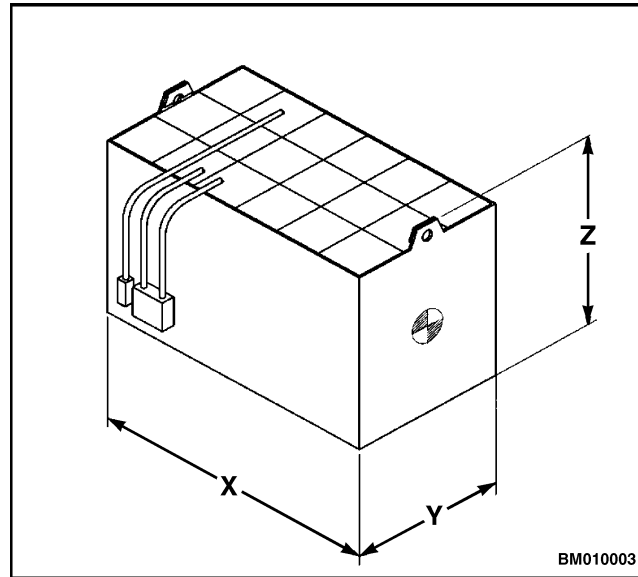


Figure 2. Battery Dimensions

Battery Specifications ¹							
Model	Type (48 V)	Wheel Base	Weight		Width (X)	Length (Y)	Height (Z)
J1.6XN and 1.8XN	NMHG Custom	1431.0 mm (56.3 in.)	MIN	1000 kg (2205 lb)	980.0 mm (38.6 in.) MAX	632.0 mm (24.9 in.) MAX	664.0 mm (26.1 in.) MAX
			MAX	1200 kg (2645 lb)			
	DIN Drop-In		MIN	813 kg (1792 lb)	830.0 mm (32.7 in.) MAX	630.0 mm (24.8 in.) MAX	
			MAX	899 kg (1982 lb)			
	DIN Side REM		MIN	813 kg (1792 lb)	830.0 mm (32.7 in.) MAX	630.0 mm (24.8 in.) MAX	630.0 mm (24.8 in.) MAX
			MAX	899 kg (1982 lb)			

¹Used with acid plate and appropriate counterweight/spacer installed.

(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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