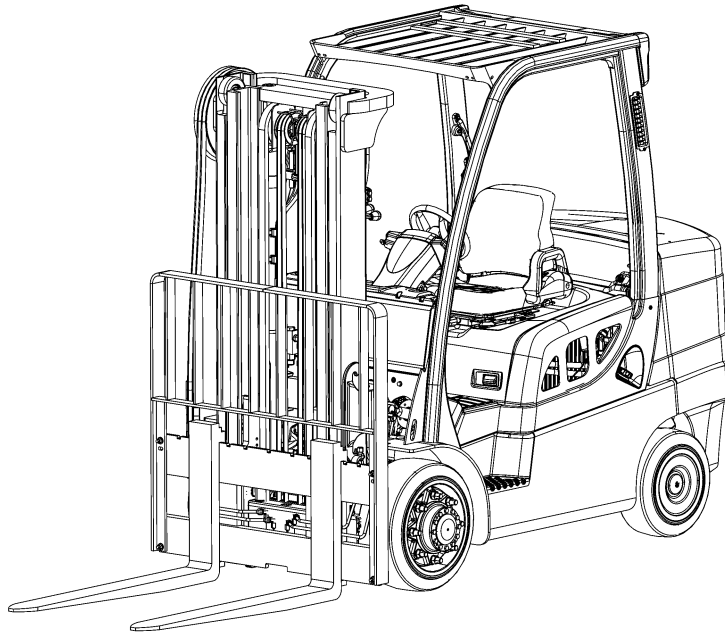


CAPACITIES AND SPECIFICATIONS

**S4.0, 4.5, 5.5FT, S5.5FTS (S80, 100, 120FT;
S80, 100FTBCS; S120FTS; S120FTPRS) [G004];
H4.0FT5/FT6; H4.5FTS5, H4.5FT6;
H5.0-5.5FT (H80, 90, 100, 110, 120FT) [N005, P005]**



HYSTER

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This section is for the following models:

S4.0, 4.5, 5.5FT, S5.5FTS (S80, 100, 120FT; S80, 100FTBCS;
S120FTS; S120FTPRS) [G004];
H4.0FT5/FT6; H4.5FTS5, H4.5FT6;H5.0-5.5FT (H80, 90, 100,
110, 120FT) [N005, P005]

Lift Truck Lifting Capacity

Model	Weight
S4.0FT (S80FT S80FTBCS)	3629 kg (8000 lb)
S4.5FT (S100FT S100FTBCS)	4536 kg (10000 lb)
S5.5FT S5.5FTS (S120FT S120FTS S120FTPRS)	5443 kg (12000 lb)
H4.0FT5, H4.0FT6 (H80FT)	3629 kg (8000 lb)
H4.5FTS5 (H90FT)	4082 kg (9000 lb)
H4.5FT6 (H100FT)	4536 kg (10000 lb)
H5.0FT (H110FT)	4989 kg (11000 lb)
H5.5FT (H120FT)	5443 kg (12000 lb)
NOTE: Load center at 500 mm (24 in.).	

Counterweight Weights

Model	Weight
S4.0FT (S80FT)	2249 kg (4958 lb)
S4.5FT (S100FT)	2552 kg (5626 lb)
S5.5FT S5.5FTS (S120FT)	3170 kg (6988 lb)
S80FTBCS	2149 kg (4738 lb)
S100FTBCS S120FTS	3205 kg (7066 lb)
S120FTPRS	3773 kg (8318 lb)
H4.0FT5 (H80FT)	2172 kg (4788 lb)
H4.0FT6	2370 kg (5225 lb)
H4.5FTS5 (H90FT)	2504 kg (5520 lb)
H4.5FT6 (H100FT)	2709 kg (5972 lb)
H5.0FT (H110FT)	3009 kg (6634 lb)
H5.50FT (H120FT)	3294 kg (7262 lb)

(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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Tire Sizes

Truck	Drive Tires	Steer Tires
S4.0FT (S80FT, S80FTBCS)	22 × 9 × 16	18 × 7 × 12.12
S4.5FT, S5.5FT, S5.5FTS (S100FT, S100FTBCS, S120FT, S120FTS, S120FTPRS)	22 × 12 × 16	18 × 8 × 12.12
H4.0FT5, H4.5FTS5 (H80FT, H90FT)	250 × 15 250 × 70 × R15 29 × 8 Dual 7.00 × 15 Dual 7.00 × R15 Dual	7.00 × 12
H4.5FT6, H5.0FT, H5.5FT (H100FT, H110FT, H120FT)	300 × 15 315 × 70 × R15 8.25 × 15 Dual 8.25 × R15 Dual	7.00 × 12

Capacities

Table 1. S4.0, 4.5, 5.5FT, S5.5FTS, (S80, 100, 120FT; S80, 100FTBCS; S120FTS; S120FTPRS) (G004)

Item	Quantity	Specifications
Fuel Capacity		
Gas	44.7 liter (11.8 gal)	86 Octane
LPG	15.1 - 20.4 kg (33.5 - 45.0 lb) Full	LPG-HD 5, HD 10
Engine Oil		
GM 4.3L	4.7 liter (5 qt)	-7°C (-20°F) and below SAE 5W-20 16°C (60 °F) and below SAE 5W-30 -18°C (0°F) and above SAE 10W-30 API SL ILSAC GF3 SAE J2362

Table 1. S4.0, 4.5, 5.5FT, S5.5FTS, (S80, 100, 120FT; S80, 100FTBCS; S120FTS; S120FTPRS) (G004) (Continued)



Item	Quantity	Specifications
Cooling System		
GM 4.3L	15.1 liter (15.9 qt)	 CAUTION Additives may damage the cooling system. Before using additives, contact your local Hyster dealer. 50% Water and 50% Ethylene Glycol, Boron-Free Antifreeze
Hydraulic Tank Oil Capacity		
GM 4.3L	38.7 liter (40.8 qt) Drain and Fill	 CAUTION Additives may damage the hydraulic system. Before using additives, contact your local Hyster dealer. ISO VG-46 Hydraulic Oil -15°C (5°F) and above
Transmission (Dry Brake)		
Basic Powershift Transmission	20 liter (21.0 qt)	John Deere JDM J20C
DuraMatch™ Transmission	20 liter (21.0 qt)	John Deere JDM J20C
Brake Oil (Master Cylinder)	0.35 liter (0.74 pt)	Dexron III
Differential and Drive Axle Oil (Dry Brake)	6.0 liter (6.3 qt)	SAE 80W-90 or 85W-140
Transmission and Wet Brake Drive Axle		
Transmission and Planetary Carrier Housing S4.0FT (S80FT, FTBCS)	28.8 liter (30.4 qt)	John Deere JDM J20C
Transmission and Planetary Carrier Housing S4.5, 5.5FT (S100FT, FTBCS) (S120FT, FTS, FTPRS)	29.8 liter (31.4 qt)	John Deere JDM J20C
Center Body S4.0, 4.5, 5.5FT; S5.5FTS ([S80, 100, 120FT]) S80, 100; S120FTS, S120FTPRS	2.0 liter (2.1 qt)	John Deere JDM J20C

Table 2. H4.0FT5/FT6; H4.5FTS5, H4.5FT6; H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005)

Item	Quantity	Specifications
Fuel Capacity		
Gas (Short Wheel Base)	79 liter (20.8 gal)	86 Octane
Gas (Long Wheel Base)	100.3 liter (26.5 gal)	86 Octane
LPG	15.1 - 20.4 kg (33.5 - 45.0 lb) Full	LPG-HD 5, HD 10
Diesel (Short Wheel Base)	79 liter (20.8 gal)	Diesel No. 2
Diesel (Long Wheel Base)	100.3 liter (26.5 gal)	Diesel No. 2
Engine Oil		
GM 4.3L	4.7 liter (5 qt)	-7°C (-20°F) and below SAE 5W-20 16°C (60 °F) and below SAE 5W-30 -18°C (0°F) and above SAE 10W-30 API SL ILSAC GF3 SAE J2362
Cummins 4.5L Diesel	13.0 liter (13.7 qt)	0°C (32°F) and below SAE 0W-30 -25 to 20°C (-13 to 68°F) SAE 5W-30 -20 to 20°C (-4 to 68°F) SAE 10W-30 -15°C (5°F) and above SAE 5W-40 or 15-40 API CH-4 or CI-4
Cummins QSB 3.3L	7.5 liter (8.0 qt)	0°C (32°F) and below SAE 0W-30 -25 to 20°C (-13 to 68°F) SAE 5W-30 -20 to 20°C (-4 to 68°F) SAE 10W-30 -15°C (5°F) and above SAE 5W-40 or 15-40 API CH-4 or CI-4

Table 2. H4.0FT5/FT6; H4.5FTS5, H4.5FT6; H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005) (Continued)




Item	Quantity	Specifications
Cooling System		
GM 4.3L	15.1 liter (15.9 qt)	 CAUTION Additives may damage the cooling system. Before using additives, contact your local Hyster dealer. 50% Water and 50% Ethylene Glycol, Boron-Free Antifreeze
Cummins 4.5L Diesel	13.5 liter (14.2 qt)	 CAUTION Additives may damage the cooling system. Before using additives, contact your local Hyster dealer. 50% Water and 50% Ethylene Glycol, Boron-Free Antifreeze
Cummins QSB 3.3L Diesel	10.4 liter (11 qt)	 CAUTION Additives may damage the cooling system. Before using additives, contact your local Hyster dealer. 50% Water and 50% Ethylene Glycol, Boron-Free Antifreeze

Table 2. H4.0FT5/FT6; H4.5FTS5, H4.5FT6; H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005) (Continued)





Item	Quantity	Specifications
Hydraulic Tank Oil Capacity		
GM 4.3L (Short Wheel Base)	51.0 liter (53.8 qt) Drain and Fill	 CAUTION Additives may damage the hydraulic system. Before using additives, contact your local Hyster dealer. ISO VG-46 Hydraulic Oil –15°C (5°F) and above
GM 4.3L (Long Wheel Base)	67.8 liter (71.6 qt) Drain and Fill	 CAUTION Additives may damage the hydraulic system. Before using additives, contact your local Hyster dealer. ISO VG-46 Hydraulic Oil –15°C (5°F) and above
Cummins 4.5L and QSB 3.3L (Short Wheel Base)	51.0 liter (53.8 qt) Drain and Fill	 CAUTION Additives may damage the hydraulic system. Before using additives, contact your local Hyster dealer. ISO VG-46 Hydraulic Oil –15°C (5°F) and above
Cummins 4.5L and QSB 3.3L (Long Wheel Base)	67.8 liter (71.6 qt) Drain and Fill	 CAUTION Additives may damage the hydraulic system. Before using additives, contact your local Hyster dealer. ISO VG-46 Hydraulic Oil –15°C (5°F) and above
Transmission (Dry Brake)		
Basic Powershift Transmission	20 liter (21.0 qt)	John Deere JDM J20C
DuraMatch™ Transmission	20 liter (21.0 qt)	John Deere JDM J20C

Table 2. H4.0FT5/FT6; H4.5FTS5, H4.5FT6; H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005) (Continued)

Item	Quantity	Specifications
Brake Oil (Master Cylinder)	0.35 liter (0.74 pt)	Dexron III
Differential and Drive Axle Oil (Dry Brake)	8.0 liter (8.5 qt)	SAE 80W-90 or 85W-140
Transmission and Wet Brake Drive Axle		
Transmission and Planetary Carrier Housing	31.3 liter (33.0 qt)	John Deere JDM J20C
Center body	2.0 liter (2.1 qt)	John Deere JDM J20C

Electrical System

Table 3. S4.0, 4.5, 5.5FT, S5.5FTS, (S80, 100, 120FT; S80, 100FTBCS; S120FTS; S120FTPRS) (G004)

Item	GM 4.3L
Battery	12-volt, negative ground
Spark Plugs	AC-41-993
Spark Plug Gap	1.5 mm (.059 in.)
Ignition Timing:	
Gas	Not Adjustable
LPG	Not Adjustable

GM 4.3L		
Alternator Output (14 Volts)	G and LPG	GS and LPS
Idle	50 amps @ 750rpm	38 amps @ 750rpm
Governed Speed	65 amps @ 2400 rpm	45 amps @ 2400 rpm

Table 4. H4.0FT5/FT6; H4.5FTS5, H4.5FT6; H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005)

Item	GM 4.3L	Cummins 4.5L and QSB 3.3L (Diesel)
Battery	12-volt, negative ground	12-volt, negative ground
Spark Plugs	AC-41-993	N/A
Spark Plug Gap	1.5 mm (0.059 in.)	N/A

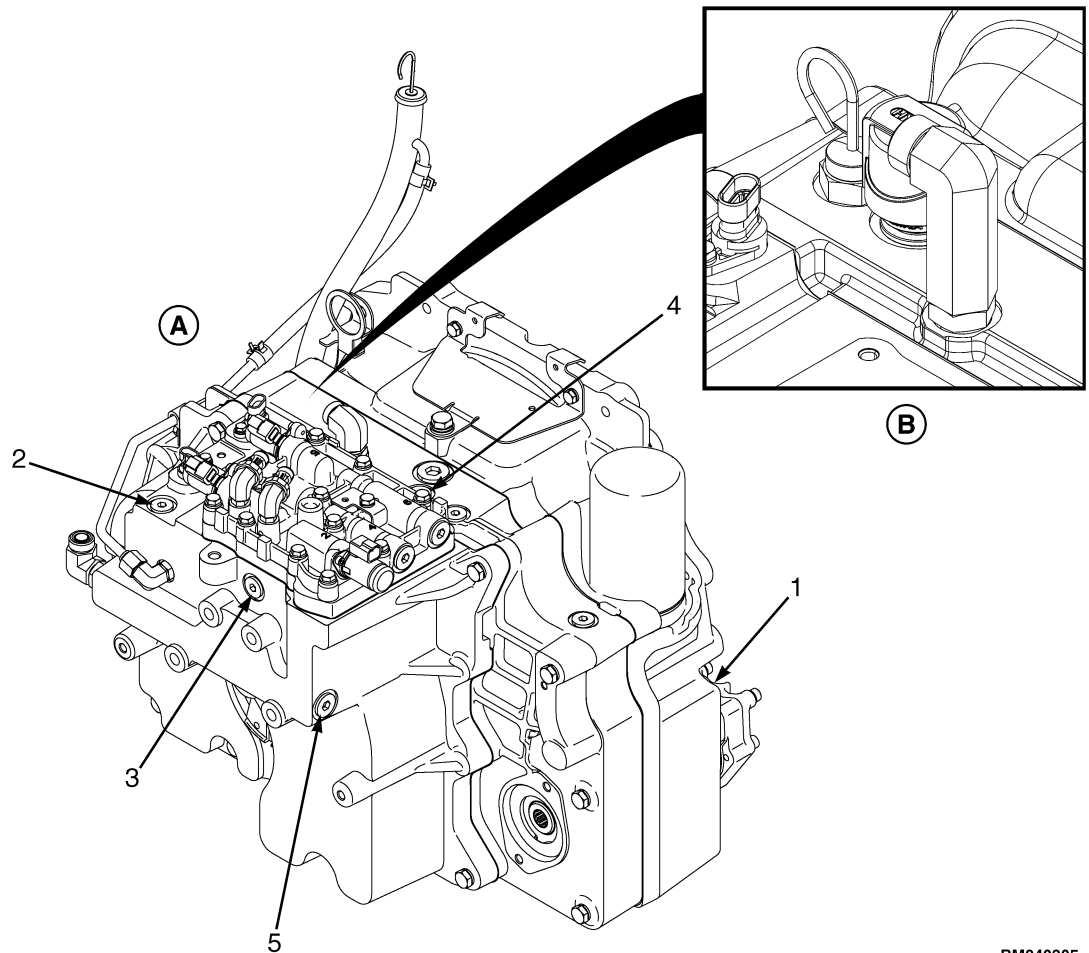
Table 4. H4.0FT5/FT6; H4.5FTS5, H4.5FT6; H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005) (Continued)

Item	GM 4.3L	Cummins 4.5L and QSB 3.3L (Diesel)
Ignition Timing:		
Gas	Not Adjustable	N/A
LPG	Not Adjustable	N/A
Diesel	N/A	Not Adjustable

GM 4.3L		
Alternator Output (14 Volts)	G and LPG	GS and LPS
Idle	50 amps @ 750rpm	38 amps @ 750rpm
Governed Speed	65 amps @ 2400 rpm	45 amps @ 2400 rpm
Cummins 4.5L (Diesel)		
Alternator Output (13.5 Volts)	D	DS
Low Idle	54 amps @ 800 rpm	32 amps @ 800 rpm
Governed Speed	95 amps @ 2250 rpm	45 amps @ 2250 rpm
Cummins QSB 3.3L (Diesel)		
Alternator Output (13.5 Volts)	D	DS
Low Idle	30 amps @ 800 rpm	20 amps @ 800 rpm
Governed Speed	95 amps @ 2230 rpm	45 amps @ 2230 rpm

Transmission Oil Pressures

1-Speed Transmission					
All Pressures at 2000 rpm and Oil at 50 to 65°C (120 to 150°F)					
Port 1 Transmission Pump		Port 2	Port 3	Port 4	Port 5
***Low Pressure	***High Pressure	Reverse Clutch	Forward Clutch	Torque Converter	Lubrication
1138 ±96* kPa (165 ±14 psi)	1482 ±96* kPa (215 ±15 psi)	983 ±58** kPa (142.5 ±8.5 psi)	983 ±58** kPa (142.5 ±8.5 psi)	738 ±52 kPa (107 ±7.5 psi)	138 ±34.5 kPa (20 ±5 psi)



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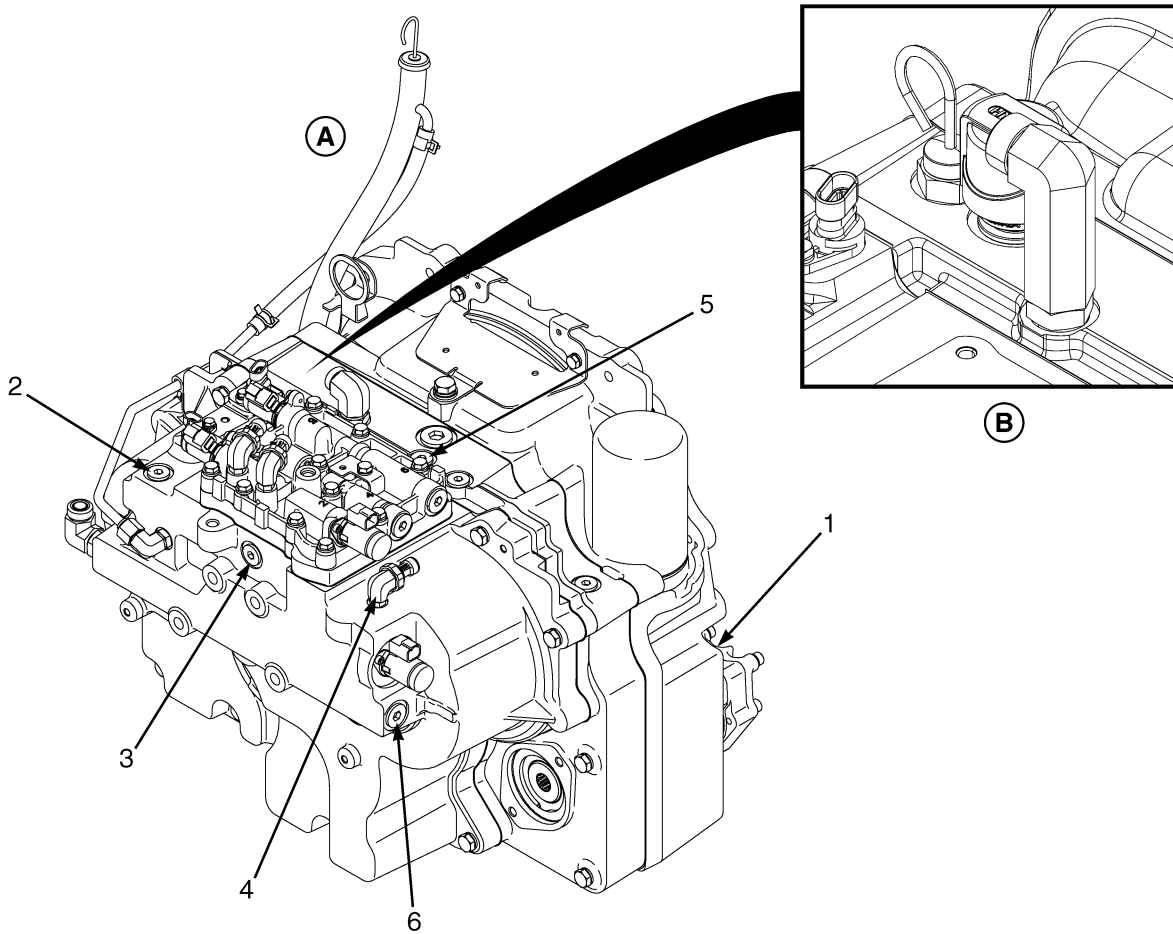
- A. EARLY MODELS
- B. LATER MODELS

*Relief Pressure

**Clutch pack pressure difference between the forward and reverse packs cannot exceed manufacturing limit of 48 kPa (7 psi) or service limit of 70 kPa (10 psi).

***High pressure port is used when the lift truck is equipped with a dry brake system. The low pressure port is used when the lift truck is equipped with a wet brake system.

2-Speed Transmission						
All Pressures at 2000 rpm and Oil at 50 to 65°C (120 to 150°F)						
Port 1 Transmission Pump		Port 2	Port 3	Port 4	Port 5	Port 6
***Low Pressure	***High Pressure	Reverse Clutch	Forward Low Clutch	Forward High Clutch	Torque Converter	Lubrication
1138 ±96* kPa (165 ±14 psi)	1482 ±96* kPa (215 ±15 psi)	983 ±58** kPa (142.5 ±8.5 psi)	983 ±58** kPa (142.5 ±8.5 psi)	983 ±58** kPa (142.5 ±8.5 psi)	738 ±52 kPa (107 ±7.5 psi)	138 ±34.5 kPa (20 ±5 psi)



BM240342

A. EARLY MODELS
B. LATER MODELS

*Relief Pressure

**Clutch pack pressure difference between the forward and reverse packs cannot exceed manufacturing limit of 48 kPa (7 psi) or service limit of 70 kPa (10 psi).

***High pressure port is used when the lift truck is equipped with a dry brake system. The low pressure port is used when the lift truck is equipped with a wet brake system.

Hydraulic System Relief Pressures

Item	Specification
Oil Temperature	50 to 65°C (122 to 149°F)
Primary Relief Valve Pressure (High Idle)	22.1 ±0.48 MPa (3205 ± 70 psi)
Secondary Relief Valve Pressure (High (Idle)	15.51 ±0.48 MPa (2250 ±70 psi)

Steering System

Table 5. S4.0, 4.5, 5.5FT, S5.5FTS, (S80, 100, 120FT; S80, 100FTBCS; S120FTS; S120FTPRS) (G004)

Item	Quantity	
Oil Temperature	50 to 65°C (122 to 149°F)	
Steering Relief Pressure at 800 rpms	10.3 ±0.3 MPa (1494 ±43.5 psi)	
Steering Cylinder Stroke (Each Side)	189.3 mm (7.4 in.)	
Inside Steering Tire Angle	79.8°	
Number of Turns to Lock	4.35	
Turning Radius (±50 mm NO LOAD)	Outside	Inside
S4.0F (S80FT)	2298	84
S80FTBCS	2102	84
S4.5FT (S100FT)	2447	103
S100FTBCS	2232	103
S5.5FT, S5.5FTS (S120FT, S120FTS)	2534	103
(S120FTPRS)	2375	103

Table 6. H4.0FT5/FT6; H4.5FTS5, H4.5FT6; H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005)

Item	Quantity
Oil Temperature	55 to 65°C (131 to 149°F)
Steering Relief Pressure at 800 rpms	12.4 ±0.3 MPa (1798 ±43.5 psi)
Steering Cylinder Stroke (Each Side)	202.6 mm (7.9 in.)
Inside Steering Tire Angle	81°
Number of Turns to Lock	4.02

Table 6. H4.0FT5/FT6; H4.5FTS5, H4.5FT6; H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005) (Continued)

Item	Quantity	
	Outside	Inside
Turning Radius (\pm50 mm NO LOAD)		
H4.0FT5 (H80FT)	2570	49
H4.0FT6	2599	49
H4.5FTS5 (H90FT)	2619	49
H4.5FT6 (H100FT)	2837	131
H5.0FT (H110FT)	2877	131
H5.5FT (H120FT)	2915	131

Stall Speeds (in RPM \pm 100 rpm)

GM 4.3L GAS

Transmission	New Engine	Broken-In Engine
Basic	2160	2210
DuraMatch™	2160	2210
DuraMatch2™	2160	2210
DuraMatch Plus2™	Stall Speed Not Valid	Stall Speed Not Valid

GM 4.3L LPG

Transmission	New Engine	Broken-In Engine
Basic	2070	2170
DuraMatch™	2070	2170
DuraMatch2™	2070	2170
DuraMatch Plus2™	Stall Speed Not Valid	Stall Speed Not Valid

CUMMINS 4.5L DIESEL

Transmission	New Engine	Broken-In Engine
Basic	1900	2050
DuraMatch™	1900	2050
DuraMatch2™	1900	2050
DuraMatch Plus2™	Stall Speed Not Valid	Stall Speed Not Valid

CUMMINS QSB 3.3L DIESEL

Transmission	New Engine	Broken-In Engine
Basic	1955	1970
DuraMatch™	1955	1970
DuraMatch2™	1955	1970
DuraMatch Plus2™	Stall Speed Not Valid	Stall Speed Not Valid

Mast Speeds

NOTE: Lift speed is measured in meters/sec at governed engine RPM with full open valve and 65°C (149°F) oil temperature.

Plus or minus 10% acceptable lifting or lowering.

Lowering speed is measured in meters/sec with full open valve and 65°C (149°F) oil temperature.

Table 7. Lift Truck Models S4.0, (S80FT, S80FTBCS) (G004)

Model/ Engine	Mast	Lowering M/Sec		Lifting M/Sec	
		No Load	Rated Load	No Load	Rated Load
S4.0FT (S80FT/BCS) GM 4.3L	2-Stage LFL	0.47	0.55	0.62	0.61
	2-Stage FFL	0.36	0.50	0.55	0.54
	3-Stage FFL	0.44	0.53	0.58	0.57

Table 8. Lift Truck Models S4.5, 5.5FT; S5.5FTS; (S100, 120FT) S100FTBCS, S120FTS; S120FTPRS (G004)

Model/ Engine	Mast	Lowering M/Sec		Lifting M/Sec		
		No Load	Rated Load	No Load	Rated Load S4.5FT (S100FT/BCS)	Rated Load S5.5FT S5.5FTS (S120FT/FTBCS/PRS)
S4.5FT S5.5FT S5.5FTS (S100FT/BCS S120FT/FTS/PRS) GM 4.3L	2-Stage LFL	0.42	0.51	0.57	0.56	0.56
	2-Stage FFL	0.32	0.45	0.54	0.52	0.52
	3-Stage FFL	0.39	0.47	0.55	0.54	0.54

Table 9. Lift Truck Models H4.0FT5, H4.0FT6; (H80FT, H90FT) (N005, P005)

Model/ Engine	Mast	Lowering M/Sec		Lifting M/Sec	
		No Load	Rated Load	No Load	Rated Load
GM 4.3L	2-Stage LFL	0.47	0.55	0.62	0.61
	2-Stage FFL	0.36	0.50	0.55	0.54
	3-Stage FFL	0.44	0.53	0.58	0.57

Table 10. Lift Truck Models H4.0FT5, H4.0FT6; (H80FT, H90FT) (N005, P005)

Model/ Engine	Mast	Lowering M/Sec		Lifting M/Sec	
		No Load	Rated Load	No Load	Rated Load
Cummins 4.5L and QSB 3.3L	2-Stage LFL	0.47	0.55	0.66	0.60
	2-Stage FFL	0.36	0.50	0.58	0.53
	3-Stage FFL	0.44	0.53	0.61	0.56

Table 11. Lift Truck Models H4.5FTS5, H4.5FT6; H5.0-5.50FT (H100, 110, 120FT); (N005, P005)

Model/ Engine	Mast	Lowering M/Sec		Lifting M/Sec	
		No Load	Rated Load	No Load	Rated Load
GM 4.3L	2-Stage LFL	0.42	0.51	0.57	0.56
	2-Stage FFL	0.32	0.45	0.54	0.52
	3-Stage FFL	0.39	0.47	0.55	0.54

Table 12. Lift Truck Models H4.5FTS5, H4.5FT6; H5.0-5.50FT (H100, 110, 120FT); (N005, P005)

Model/ Engine	Mast	Lowering M/Sec		Lifting M/Sec	
		No Load	Rated Load	No Load	Rated Load
Cummins 4.5L and QSB 3.3L	2-Stage LFL	0.42	0.51	0.53	0.48
	2-Stage FFL	0.32	0.45	0.50	0.46
	3-Stage FFL	0.39	0.47	0.51	0.47

Tilt Angles

Truck should be on level ground and in unloaded condition.

Table 13. S4.0, 4.5, 5.5FT, S5.5FTS, (S80, 100, 120FT; S80, 100FTBCS; S120FTS; S120FTPRS) (G004) Lift Truck Models

Forward	Tolerance	Back	Tolerance
5°	+1°, -0.5°	6°	+0°, -0.5°
8°	+1°, -0.5°	5°	+0°, -0.5°

Table 14. H4.0FT5/FT6; H4.5FTS5, H4.5FT6; H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005) Lift Truck Models

Forward	Tolerance	Back	Tolerance
12°	+1°, -0.5°	6°	+0°, -0.5°
6°	+1°, -0.5°	10°	+0°, -0.5°
6°	+1°, -0.5°	6°	+0°, -0.5°

Front End Equipment - Mast Creep

MAST CREEP

Measure with load at 2.5 m (8.0 ft) high and with the lift, tilt, and auxiliary control levers in neutral position.

NOTE: Mast should be 90° vertical prior to test.

Table 15. S4.0, 4.5, 5.5FT, S5.5FTS, (S80, 100, 120FT; S80, 100FTBCS; S120FTS; S120FTPRS) (G004) Lift Truck Models

Hydraulic Oil Temperature		Maximum Vertical Creep at Carriage		Maximum Tilt Creep		
				Mast Angle	Cylinder Stroke	
°C	°F	mm/Min	in./Min	°/Min	mm/Min	in./Min
20	68	2.2	0.086	0.11	1.1	0.043
30	86	3.3	0.130	0.16	1.6	0.063
40	104	6.3	0.247	0.13	3.00	0.118
50	122	10.0	0.394	0.50	4.9	0.193
60	140	14.6	0.575	0.73	7.3	0.287

Table 16. H4.0FT5/FT6; H4.5FTS5, H4.5FT6; H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005) Lift Truck Models

Hydraulic Oil Temperature		Maximum Vertical Creep at Carriage		Maximum Tilt Creep		
				Mast Angle	Cylinder Stroke	
°C	°F	mm/Min	in./Min	°/Min	mm/Min	in./Min
20	68	2.2	0.086	0.11	1.129	0.051
30	86	3.3	0.130	0.16	1.88	0.074
40	104	6.3	0.247	0.31	3.65	0.144
50	122	10.0	0.394	0.50	5.88	0.232
60	140	14.6	0.575	0.73	8.59	0.388

Engine Specifications

Item	GM 4.3L
No. of Cylinders	6
Firing Order	1-6-5-4-3-2
Bore	101.6 mm (3.9 in.)
Stroke	88.4 mm (3.48 in.)
Displacement	4.3 liter (262.4 in. ³)
Horsepower (Gasoline)	100 @ 2400 rpm
Horsepower (LPG)	93 @ 2400 rpm
Engine Timing	Timing is controlled by the Electronic Control Module (ECM)
Compression Ratio	
Gas	9.4:1
LPG	9.4:1
Oil Pressure	207-380 ± 30 kPa (30-55 ± 4.4 psi) @ 2000 80°C (176°F)
Valve Clearance	
Intake	Not Adjustable
Exhaust	Not Adjustable
Idle Speed - Gas	750 ±25 rpm
Idle Speed - LPG	750 ±25 rpm
Governed Speed High Idle (No Load)	2400 ±25 rpm
Thermostat Range	
START TO OPEN	82 ±1.5°C (180 ±35°F)

Item	GM 4.3L
FULL OPEN	128 ±1.5°C (260 ±35°F)
Cooling System Pressure	103 kPa (15 psi)

Item	Cummins 4.5L Diesel
No. of Cylinders	4
Firing Order	1-3-4-2
Bore and Stroke	102 mm × 138 mm (4.01 in. × 5.43 in.)
Displacement	4506 cc
Compression Ratio	17.6:1
Horsepower/rpm	78 @ 2050 rpm
Oil Pressure @ 80°C (176°F)	at low idle 69 kPa (10 psi) @ 800 rpm at high idle 207 kPa (30 psi) @ 2250 rpm
Valve Clearance	
Intake	0.254 mm (0.010 in.) (COLD)
Exhaust	0.508 mm (0.020 in.) (COLD)
Idle Speed (Cold Engine)	770 ±50 rpm
Idle Speed (Hot Engine)	800 ±50 rpm
Governed Speed High Idle (No Load)	2250 ±50 rpm
Thermostat Range	
START TO OPEN	82°C (180°F)
FULL OPEN	95°C (203°F)
Cooling System Pressure	103 kPa (15 psi)

Item	Cummins QSB 3.3L Diesel
No. of Cylinders	4
Firing Order	1-3-4-2
Bore and Stroke	95 mm × 115 mm (3.74 in. × 4.53 in.)
Displacement	3261 cc
Compression Ratio	17.3:1
Horsepower/rpm	80 @ 2200 rpm
Oil Pressure	49 kPa (7 psi)
Valve Clearance	
Intake	0.35 mm (0.014 in.)

Item	Cummins QSB 3.3L Diesel
Exhaust	0.50 mm (0.02 in.)
Idle Speed	800 ±25 rpm
Governed Speed High Idle (No Load)	2230 ±25 rpm
Thermostat Range	
START TO OPEN	82°C (180°F)
FULL OPEN	95°C (203°F)
Cooling System Pressure	103 kPa (15 psi)

Torque Specifications

FRAME

Overhead Guard Mount Capscrews

66 N•m (49 lbf ft)

Cowl-to-Overhead Guard Legs

66 N•m (49 lbf ft)

Counterweight Capscrews

1020 N•m (750 lbf ft)

MAST

Mast Mounting Capscrews

Mast to Drive Axle 320 N•m (236 lbf ft)

Tilt/Cylinder Adjust 90 N•m (66 lbf ft)

Pivot Pin Retainer 68 N•m (50 lbf ft)

STEERING SYSTEM

Hub Nut (Slotted Nut)

203 N•m (150 lbf ft) initial

34 N•m (25 lbf in) final

Steering Axle Mounting Bolts and Nuts

215 N•m (159 lbf ft)

Bearing Cap Capscrew

52 N•m (38 lbf ft)

Tie Rod Nut

175 N•m (129 lbf ft)

Steering Cylinder

225 N•m (166 lbf ft)

DRIVE AXLE (WET BRAKE)

Hub Ring Nut

500 to 600 N•m (369 to 443 lbf ft)

Safety Flange Socket Head Screw

9.5 to 10.5 N•m (84 to 93 lbf in)

Planetary Carrier Cover to Drive Axle Capscrews

182 to 202 N•m (134 to 149 lbf ft)

Thrust Bushing Socket Head Screws

23.8 to 26.2 N•m (17.6 to 19.3 lbf ft)

Parking Brake Lever Socket Head Screw

10 N•m (88.5 lbf in)

Return Spring Capscrews

10 to 15 N•m (88.5 to 132.8 lbf ft)

Piston Guide Socket Head/Pin Screws

5 to 7 N•m (44 to 62 lbf in)

Parking Brake Lever Adjustment Screw Nut

20 to 25 N•m (14.75 to 18.44 lbf ft)

Bevel Pinion Ring Nut

400 to 500 N•m (295 to 369 lbf ft)

Bevel Pinion Housing Capscrews

68 to 75 N•m (50 to 55 lbf ft)

Transmission Support Capscrews

182 to 202 N•m (134 to 149 lbf ft)

Bevel Gear Capscrews

139 to 154 N•m (102.5 to 113.6 lbf ft)

Drive Axle Arm to Drive Axle Central Body Nuts

129 to 143 N•m (95 to 105.5 lbf ft)

Drive Shaft Capscrews

50 to 63 N•m (37 to 46.5 lbf ft)

Drive Axle to Frame Mounting Capscrews

820 to 902 N•m (605 to 665 lbf ft)

Differential Adjustment Ring Nut**Socket Head Screw**

23.8 to 26.2 N•m (17.6 to 19.3 lbf ft)

Transmission Isolator Mounting Bolt

225 to 250 N•m (166 to 184 lbf ft)

Cushion Truck Wheel Nuts

610 to 680 N•m (450 to 501 lbf ft)

Pneumatic Truck Wheel Nuts

610 to 680 N•m (450 to 502 lbf ft)

Drive Axle Center Body Drain Plug

30 to 50 N•m (22 to 37 lbf ft)

Drive Axle Center Body Fill/Level Plug

30 to 50 N•m (22 to 37 lbf ft)

Planetary Carrier Housing Drain Plug

30 to 50 N•m (22 to 37 lbf ft)

Planetary Carrier Housing Fill/Level Plug

30 to 50 N•m (22 to 37 lbf ft)

DRIVE AXLE (DRY BRAKE)**Propeller Shaft Retention Bolts (U-Joint)**

30 to 37 N•m (22 to 27 lbf ft)

Hanger Assembly to Frame

820 to 902 N•m (605 to 665 lbf ft)

Ring Gear Capscrews

152 to 167 N•m (112 to 123 lbf ft)

Pinion Nut, to Seat Bearing

530 to 645 N•m (391 to 476 lbf ft)

Pinion Nut, for Pre-Load

370 to 410 N•m (273 to 302 lbf ft)

Pinion Shaft

5.9 to 9.8 N•m (52.2 to 86.7 lbf in)

Pinion Cover Capscrews

19 to 23 N•m (168 to 204 lbf in)

Axle Shaft Capscrews

90 to 99 N•m (66 to 73 lbf ft)

Brake Assembly Mounting

340 to 375 N•m (250 to 276 lbf ft)

Drain Plug

50 to 55 N•m (37 to 41 lbf ft)

Fill Plug

151 to 166 N•m (111 to 122 lbf ft)

Bearing Cap Capscrews

225 to 270 N•m (166 to 199 lbf ft)

Drop Box Housing

19 to 23 N•m (168 to 204 lbf in)

Differential Cover Capscrews

19 to 23 N•m (168 to 204 lbf in)

Axle to Differential Housing

225 to 248 N•m (166 to 183 lbf ft)

Differential Carrier Halves Capscrews

66 to 79 N•m (49 to 58 lbf ft)

Brake Manifold to Center Section**Housing Capscrews**

19 to 21 N•m (14 to 15.5 lbf ft)

TRANSMISSION**Transmission Mounting Bracket Capscrews**

66 to 73 N•m (49 to 54 lbf ft)

Transmission to Drive Axle Bolt

225 to 250 N•m (166 to 184 lbf ft)

Transmission Housing Bolts

38 N•m (28 lbf ft)

Drive Plate to Torque Converter Capscrews

55.6 N•m (41 lbf ft)

Chain Drive Assembly

38 N•m (41 lbf ft)

Torque Converter Housing Capscrews

38 N•m (41 lbf ft)

Transmission Pump Capscrews

19 N•m (168 lbf in)

Transmission Enable Valve Capscrews

3 to 4 N•m (27 to 35 lbf in)

Forward and Reverse Valves Capscrews

3 to 4 N•m (27 to 35 lbf in)

Control Valve Mounting Capscrews

13.3 N•m (118 lbf in) initial

19 N•m (168 lbf in) final

Torque Converter Housing Cover Plate

7.9 N•m (5.8 lbf ft)

Torque Converter Housing Cover

19 N•m (168 lbf ft)

Speed Sensor Capscrew

6.9 N•m (5 lbf ft)

Transmission Input/Output Shaft Speed Sensor Capscrew

6.9 N•m (5 lbf ft)

ENGINE - GM 4.3L**Alternator Pulley**

61 N•m (45 lbf ft)

Balance Shaft Gear Capscrew

20 N•m (177 lbf in) Plus 35 Degrees

Balance Shaft Retainer Capscrews

12 N•m (106 lbf in)

Camshaft Retainer Screws

12 N•m (106 lbf in)

Camshaft Sprocket Capscrews

28 N•m (21 lbf ft)

Camshaft Sprocket Nut

25 N•m (18 lbf ft)

Chain Control Block for Hydraulic Pump Drive

19 N•m (168 lbf in) with Adhesive Sealant

Connecting Rod Cap

27 N•m (240 lbf in)

After this step, tighten nuts an additional 70 degrees.

Coolant Pump to Engine Block

41 N•m (30 lbf ft)

Cooling Fan to Pulley

24 N•m (212 lbf in)

Cylinder HeadSee the section **GM Engines, 4.3 Liter V-6 600 SRM 1251** for torque value and tightening sequence to use.**Distributor Mount Capscrew**

25 N•m (18 lbf ft)

Exhaust Manifold

15 N•m (133 lbf in) - first step

30 N•m (22 lbf ft) - second step

Flywheel

100 N•m (74 lbf ft)

Flywheel Housing

48 N•m (35 lbf ft)

Inlet Manifold to Cylinder Head

3 N•m (27 lbf in) - first step

12 N•m (106 lbf ft) - second step

15 N•m (133 lbf in) - third step (final)

Main Bearing Cap

105 N•m (77 lbf ft)

Motor Mount to Engine

31 N•m (23 lbf ft)

Oil Pump Cover

12 N•m (106 lbf in)

Oil Pump to Crankcase

90 N•m (66 lbf ft)

Oil Pressure Switch

27 N•m (20 lbf ft)

Oil Screen Support to Crankcase

50 N•m (37 lbf ft)

Oil Pan to Crankcase

Capscrews 25 N•m (18 lbf ft)

Nuts 25 N•m (18 lbf ft)

Rear Oil Seal Retainer Screws and Nut

15 N•m (133 lbf in)

Rocker Arm Cover

12 N•m (106 lbf in)

Rocker Arm Nuts

25 N•m (18 lbf ft)

Rocker Arm Studs

47 N•m (35 lbf ft)

Rocker Arm Bolts

30 N•m (22 lbf ft)

Thermostat Housing

25 N•m (18 lbf ft)

Timing Cover

12 N•m (106 lbf in)

Valve Lifter Retainer Capscrews

16 N•m (142 lbf in)

Vibration Damper

95 N•m (70 lbf ft)

**ENGINE - CUMMINS 4.5L AND QSB 3.3L
DIESEL**

For torque instructions for the Cummins 4.5L and QSB 3.3L diesel engine, contact your local **Hyster** dealer or see **Hyster Hypass Online**.

HYSTER TECHNICAL PUBLICATIONS
