



Cat[®] SH680

ROOF SUPPORT CARRIER

FEATURES:

Capacity

- Lift and Carry Capacity*
 - Without Ballast – 80 tonnes (90 tons) at 1575 mm (62 in)

*Capacities based on 55×33 solid tires.

Drive Train

- Tram Motor
 - Four proprietary design, mine traction, gear motors rated at 74 kW (100 hp), one hour rating (298 kW [100 hp] total), VFD driven, 140V AC; MSHA totally enclosed explosion proof; non-ventilated cooling; foot mounted. Two motors are front frame mounted driving the front axle. Two motors are mid-frame mounted driving the rear axle.
- Drive Lines
 - 1350 NCV Drive-lines Series shafts
- Axles
 - Front and rear rigid mounted outboard planetary axles with dual inputs, wet disc spring applied, hydraulically released brakes and hydraulically actuated Diff-Lock
 - Motor overspeed protections are inherent to the AC drive package.

Brakes

- Four wheel Service/Parking Brakes
 - SAHR
 - Forced oil cooled
 - Left pedal activated
 - Reverse modulating control valve
 - Manual wear indication

Hydraulics

- Pump Motor
 - Mine duty, laminated frame, VFD driven motor rated at 75 kW (100 hp) for 1 hour; 140V AC; MSHA totally enclosed explosion proof; non-ventilated cooling.
- Pump
 - Pressure Compensated, Load Sense 151 L/min (40 gpm)
- Filtration
 - Standard – Three pressure filters; one 25 micron filter on the main hydraulic circuit, one 10 micron filter on the accumulator circuit, and one 10 micron filter on the pilot valve circuit. One tank mounted 25 micron return filter, and 10 micron fluid port filters on key control circuits.

- Reservoir
 - A 246 L (65 gal) capacity, weld in reservoir equipped with a spin-on filter/breather.
- Reservoir Fill System
 - Venturi Jet refill system located on opposite side from operator on the middle frame that allows refilling of reservoir through the return line oil filter.
- Valve Bank
 - Seven section, pilot operated, parallel type with internal relief and a dash mounted, glycerin filled pressure gauge.
- Hydraulic PTO
 - Two (2) quick coupler connections, 17.6 mPa (2,550 psi) maximum recommended operating pressure.
- Tilt Lift Cylinder
 - Two (2) 267 mm (10.5 in) bore, double acting cylinders with load locking valves.
- Bell-Crank Lift Cylinder
 - Two (2) 216 mm (8.5 in) bore, double acting cylinders with load locking valves.
- Steering Cylinder
 - Two (2) 152 mm (6 in) bore, double acting cylinders with dual relief setting at 22 mPa (3,200 psi).
- Battery Changer Cylinders
 - Lift: Two (2) 152 mm (6 in) bore, double acting cylinders with load locking valves.
 - Tilt: Two (2) 178 mm (7 in) bore, double acting cylinders with load locking valves.

Dual Lift System

- Standard Load Lift
 - A combination bell crank arm and bell crank lifting cylinder for vertical lifting and tilting cylinders for tilt lifting of a universal load lift frame that is provided as standard equipment. Heavy duty forged alloy steel forks, 152 mm × 406 mm × 2134 mm (6 in × 16 in × 84 in), are standard for 80 tonne (90 ton) lift capability.
- Winch
 - A fully hydraulic operated, 45 300 kg (100,000 lb) winch, with variable speed pay in/out. Heavy duty fabricated steel drum.
- Winch Rope Assembly
 - 35 mm (1½ in) Kevlar armored, synthetic rope with connection link and swivel hook

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- **Tri-Section Frame**
 - The tri-section frame design featuring multiple plate, modular construction for maximum strength and structural integrity and the design produces a maximum of stability while maneuvering with a heavy load. All high stressed areas are manufactured with T1 steel.
- **Center Section**
 - Center section is designed with hardened 152 mm (6 in) diameter pivot pins and spherical bearings to provide maximum load transfer and long component life. Entire center section area manufactured with T1 steel.
- **Oscillation Section**
 - A 1194 mm (47 in) diameter bearing with 31.75 mm (1¼ in) diameter rolling elements provides 20 degrees of oscillation.
- **Battery Change System**
 - Hydraulically operated, bell-crank, with vertical lift and tilt battery lift to allow facilitated loading of battery with the battery on opposing grades to the machines orientation and to enhance the vehicles departure angle for negotiating undulating bottom conditions. The battery/battery tray assembly can be further raised to increase the rear approach clearance up to 610 mm (24 in).

Operator's Compartment

- **Side Egress Access**
- **Left hand steering with control stick with the following functions:**
 - Pump motor start/stop
 - Park brake release/set
 - Directional headlights
 - Tram direction
 - Stop
- **Panic Strip Switch** – de-energizes the electrical system and applies the automatic park brake
- **Dash Mounted Glycerin Filled Hydraulic Gauges** for accumulator, system pressure and emergency brake
- **Warning Gong**
- **Right Hand Tilt-Lift Control Lever**
- **Hydraulic PTO Control Lever**
- **Battery Changer Control Lever**
- **Hydraulic Circuit Breaker Reset Control**
- **Emergency/Park Brake Release Hand Pump**
- **Right Foot Accelerator Pedal**
- **Left Foot Brake Pedal**

Manuals

- **Two Parts Manuals**
- **Two Operation and Preventive Maintenance Manuals**
- **Two Electrical Troubleshooting Guides**
- **Two Battery Maintenance Manuals**
- **Two Battery Maintenance Charts**
- **One LinkOne CD** includes all above manuals in electronic format

Hydraulic Installation: (Standard)

- **JIC fittings with 34 473 kPa (5,000 psi) Hosing; MSHA 2G flame resistant approved**

Electrical Controller

- **Modular design, microprocessor controlled IGBT, contactorless, variable frequency drive (VFD), 140V AC, 3,200 amp total, traction motor controllers, with infinitely variable, step less, machine speed control, equipped with advanced on-board dashboard display for machine information of battery capacity, battery voltage, motor currents, elapsed time hour meter, distance traveled per battery charge cycle and troubleshooting diagnostics information.**
 - **Tram and Pump motors with RTD monitoring.** Temperature data recording provided to aid in motor protections and preventative maintenance.
 - **Park Brake/Tram Inhibit Installation Kit** providing brake system pressure monitoring to limit the potential to tram through parking brakes.

Circuit Breaker Options

- **Magnetic, UVR Trip** – controller enclosure equipped with UVR trip circuit breaker rated mine duty 800 amp frame, 600V.
- **Standard Cab mounted breaker reset** using a single high capacity, swivel end style push/pull cable. A manual control handle is mounted within the confines of the operator's compartment.

Cab Options

- **Manual Adjustable Cab Assembly** – MSHA certified cab, formed support plate, access handles, completely enclosed grid and dual corner opening doors.
- **Hydraulically Adjustable Cab Assembly** – MSHA certified cab, formed support plate, access handles, completely enclosed grid and dual corner opening doors.
- **Fixed height 508 mm (20 in) Cab Assembly** – MSHA certified cab, formed support plate, access handles, completely enclosed grid and dual corner opening doors.

Fire Suppression

- **Automatic, ANSUL, eight point fire suppression system** with (2) 20# suppressant canisters. NPT (2) wire braid, MSHA 2G hose with NPT fittings. One 20# Canister Hand Held unit. The system is designed within the guidelines published by the manufacturer.

Lift Attachments

- **Fork Assembly** – 2134 mm (84 in) Overall Length – set of 2134 mm (84 in) overall length up-set forged forks designed to lift and carry 80 tonnes (90 tons) at 1575 mm (62 in) from the load lift plate mounted to the machine.
- **Quick Attach Lift Plate** – 2134 mm (84 in) (fork assembly required) – designed to lift and carry 80 tonnes (90 tons) at 1575 mm (62 in) from the face of the load lift frame. The plate mounts directly to the 2134 mm (84 in) forks through two parallel pockets and is held in place with two drop pins chained to the lift plate.

Lighting System

- **Halogen, 12V DC, 50 watt** – two 12V quartz halogen front headlights with protective guard, and two rear headlights with protective guard that moves up and down with the battery lift system.

Battery Plug

- **Machine is equipped with two J&R 7000, 5-pole brass plugs** wired in parallel, each with a captive wrench to install or remove the battery plugs. Each battery plug is rated at 600 amps.

Machine Accessories (Optional)

- Cable Guide Assembly (standard)
- Reflector Installation – additional reflectors mounted in strategic locations on the machine (standard)
- Pressure Switch Kit, Intrinsically Safe – electric/hydraulic system to shutdown the tram motors in the event of low hydraulic system pressure
- Shroeder Testmate with JIC fittings
- Power Disconnect Switch (required in PA)
- Optional Reinforced Fork Plate per special requirements.
- Battery Tray – One Required for Each Battery Assembly – heavy duty welded steel battery trays for use with 1,820 amp hour battery assemblies.
- Park Brake/Tram Inhibit Installation Kit providing brake system pressure monitoring to limit the potential to tram through parking brakes (standard).
- Hydraulic Easy Test Kit providing for the ability to monitor the hydraulic system.

- In line Flow Meter monitoring of the tandem hydraulic pump outputs. Provides the addition of two analogue gauges in the hydraulic bay.
- Tilt Cylinder Protection Kit consisting of two, hinged, heavy duty steel plates protecting the Tilt Cylinder Rods.
- Shield Deflector/Cage Protector consisting of a frame mounted supported structure, 25.4 mm (1 in) higher than the Canopy at maximum height. Allowing protection for the Canopy and Cage assembly forming the operator’s cab.
- Addition of two, 36 tonne (40 ton) tow hooks to the fork frame (standard).
- PIR Disconnect Kit required for PA approval.

Machine Battery Dual Tray

- Battery, 140ss-140-27, 1,820 amp/hour 240V, with slide latch and clip shrouds – dual tray battery assembly with slide latch locking devices on the battery lids and clip-on insulating shrouds on the internal cell connections.

Battery Charger – Dual Connector

- Dual outlet for two batteries

Specifications

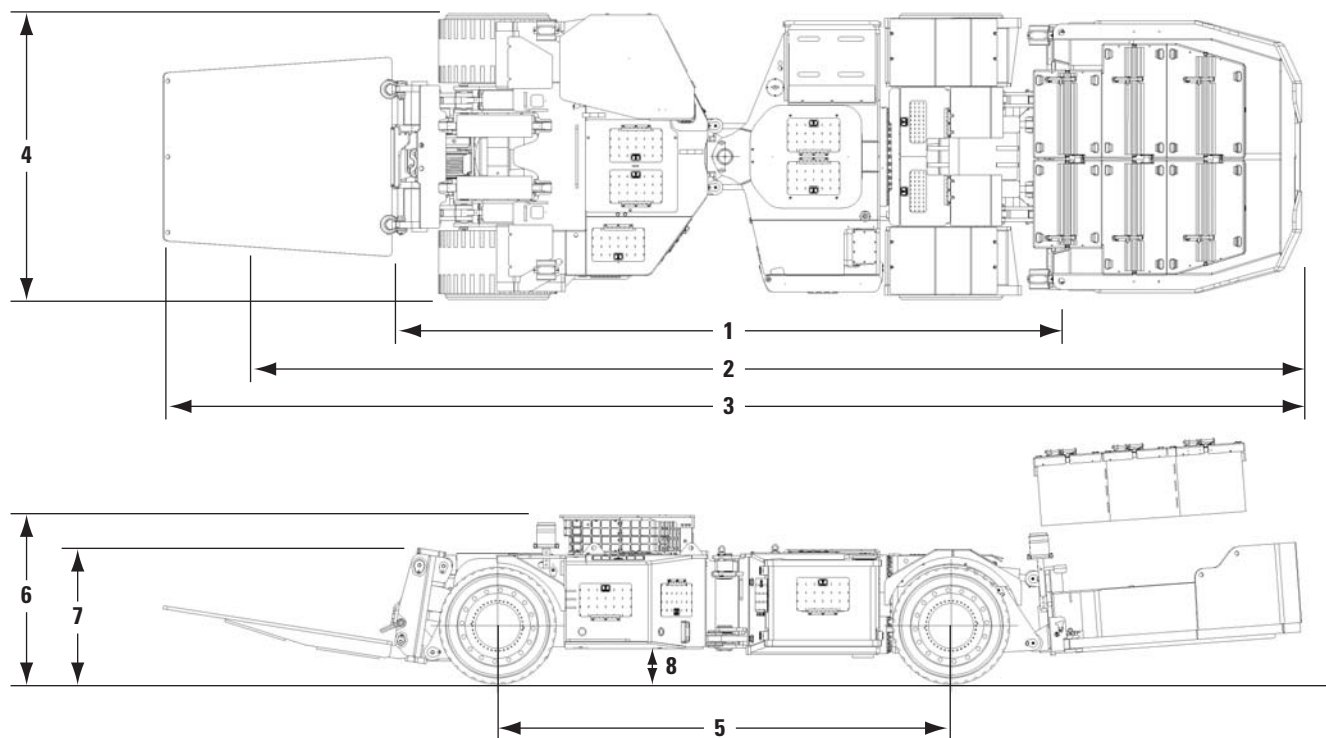
Weights

Empty Weights		
Less Battery	55 565 kg	122,500 lb
340 kW Hour Battery Pack	89 585 kg	197,500 lb

Speed

Tram Speed (calculated based on 4% rolling resistance)			
Level and Empty on 0% Grade	5.8 km/h	3.6 mph	
Level and Loaded on 0% Grade	5.8 km/h	3.6 mph	

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Dimensions (All dimensions are approximate.)*

1 Length Less Load Lifting and Battery Lift Forks	8026 mm	26 ft 4 in	7 Chassis Height (Nominal) – with 1397 mm (55 in) Tires	1587 mm	62.5 in
2 Length with 2134 mm (84 in) Lifting Fork	12 801 mm	42 ft 0 in	8 Ground Clearance (Nominal)*** – with 1397 mm (55 in) Tires	355.6 mm	14 in
3 Length with Lift Plate Attachment	13 818 mm	45 ft 4 in	Inside Turn Radius	4140 mm	13 ft 7 in
4 Overall Width with Attachments and 1397 mm (55 in) Tires	3454 mm	11 ft 4 in	Outside Turn Radius	7214 mm	23 ft 8 in
5 Wheelbase	5486 mm	18 ft 0 in	Steering Articulation	100 Degrees Total	
6 Cab Height**			Frame Oscillation	20 Degrees Total	
Standard Cabs (508 mm [20 in] Cab) – with 1397 mm (55 in) Tires	Adjust from 1778 mm-2032 mm	Adjust from 70 in-80 in			

*Detailed GA drawings available for specific dimensions and component locations.

**Lower cab heights available on request.

***Please reference sales drawing for Ground Clearance profile.

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