



**H70-80XM, H90XMS,
H100XM, H110XM,
H120XM**



PERFORMANCE/PRODUCTIVITY

ERGONOMICS

SERVICEABILITY

NOISE CONTROL

VISIBILITY

VIBRATION CONTROL

STYLING

PERFORMANCE|PRODUCTIVITY

- ★ (2 spd. Autoshift Transmission - opt. H70-80XM, H90XMS, std. on H100-120XM)
 - New two speed powershift transmission designed and manufactured by NMHG.
 - Electronic control module shifts between forward low and forward high.
 - Reverse is one speed.
- ★ (2nd Gear Lockout Switch - located on front of dash just right of steer column)
 - Locks the transmission in forward low.
 - Can be disengaged “on the fly” (while in motion).
- ★ (Increased Capacity)
 - Model series has increased capacity range up to 12,000 lb @ 24” load center.
- ★ (Integral Sideshift)
 - Improved visibility versus hang-on sideshift.
 - Offers improved capacity rating through reduction in loss load face.
- ★ (Monotrol Pedal)
 - Improved load handling efficiency and easier operator control.
 - Monotrol is standard - fwd./rev. lever is optional.
 - Neutral is obtained by utilizing the hand lever parking brake with Monotrol.

PERFORMANCE|PRODUCTIVITY

★ 2 Spd. Autoshift Transmission



★ 2nd Gear Lockout Switch



★ Monotrol Pedal



★ Increased Capacity

★ Integral Sideshift (Hook)



PERFORMANCE

STANDARD

- ★ (GM 4.3L V-6 Gas Engine)
 - 262 cubic inches.
 - Serpentine belt.
- ★ (Modern High-Tech Engine)
 - Adapted for industrial use.
- ★ (High Energy Ignition)
 - Direct fire ignition system coupled with an electronic governor.
- ★ (Throttle Body Injection)
 - Provides precise metering of fuel into intake manifold, resulting in quicker response in acceleration.
- ★ (93.5 hp. @ 2200 R.P.M.)
 - Same hp. as previous model at 300 less R.P.M.
 - XL version governed at 2500 R.P.M.
 - Much quieter engine resulting in reduced noise fatigue.
- ★ (228 ft.-lbs. of torque @ 2150 R.P.M.)

OPTIONAL

- ★ (PERKINS 1004.4 Diesel Engine)
 - New Darwin engine.
- ★ (4.23L 4 Cylinder)
 - 258 cubic inches.
 - Increase in displacement from 4.0 liters, 5%.
- ★ (Reduced Noise and Vibration)
 - It has been designed to meet new strict emission requirements.
- ★ (Quad Ram Pistons)
 - New design piston provides better air/fuel mixture which reduces the amount of mis-spent fuel in the combustion chamber.
- ★ (78 hp. @ 2200 R.P.M.)
 - Operates at a much lower R.P.M. than previous engine (2500 R.P.M.). 12% reduction in R.P.M. resulting in much quieter engine and reduced noise fatigue.
- ★ (214 ft.-lbs. of torque @ 1350 R.P.M.)

PERFORMANCE

STANDARD

- ★ GM 4.3L V-6 Gas Engine
- ★ Modern High-Tech Engine
- ★ High Energy Ignition
- ★ Throttle Body Injection
- ★ 93.5 hp. @ 2200 R.P.M.
- ★ 228 ft.-lbs. of torque @ 2150 R.P.M.



OPTIONAL

- ★ PERKINS 1004.4 Diesel Engine
- ★ 4.23L 4 Cylinder
- ★ Reduced Noise and Vibration
- ★ Quad Ram Pistons
- ★ 78 hp. @ 2200 R.P.M.
- ★ 214 ft.-lbs. of torque @ 1350 R.P.M.



ERGONOMICS

- ★ (Full Suspension Seat - optional)
 - Seat will assist in absorbing vibration and rough road conditions.
 - Backrest reclines for operator preference.
 - Seatbelt travels with the seat and operator during suspension strike.
 - Sears has designed the seat to allow the operator to turn freely while in reverse.
 - The top surface of the backrest is soft and wide to act as an arm rest area while operator is turned in the seat to view rearward.
- ★ (Swing-out LPG Tank)
 - Tank bracket swings outward 90° to facilitate tank removal and installation.
 - Bracket release is spring loaded and tank is secured by a steel retainer.
- ★ (Cowl Mounted Storage Compartment)
 - Large enough to hold a clipboard plus pens, etc.
- ★ (Forward/Backward Seat Adjustments)
 - Standard seat adjusts 6" totally to accommodate operators of various heights, available in either cloth or vinyl.
- ★ (Thick Floormat)
 - Reduces operator fatigue through rough road conditions.
- ★ (Hip Restraints)
 - Assists operator in entry/exit.
 - Assists in operators seat position along with use of seat belt during turning and rough road conditions.
- ★ (Instrument Panel)
 - Mounted on right side of steering column on the dash for convenient operator viewing.
 - Is backlit for brighter imaging in low lighting conditions.

ERGONOMICS

- ★ Full Suspension Seat Option
(Vinyl Non-Suspension-Standard)



- ★ Swing Out LPG Tank

- ★ Cowl Mounted Storage Compartment



- ★ Thick Floormat
- ★ Forward/Backward Seat Adjustment
- ★ Hip Restraints

- ★ Instrument Panel

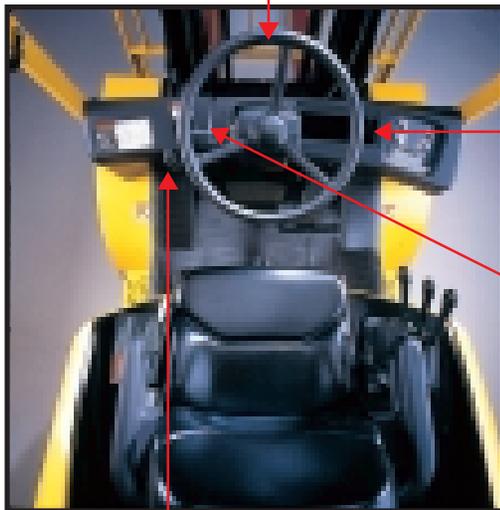


ERGONOMICS

- ★ (4 Position Tilt Wheel)
 - Will comfortably match the operator's preferred wheel position.
- ★ (Storage Compartment)
 - Provides additional storage for radio frequency devices, etc.
- ★ (Seat Side Hydraulic Levers)
 - Convenient, easy to reach operation.
 - Contour molded for firm gripping and movement.
 - Low operating force.
- ★ (Single Directional Lever)
 - Conveniently located on the left hand side just behind steering wheel.
- ★ (3 Point Entry/Exit)
 - Left foot on large open step, right hand on hip restraint, left hand on hand grip on overhead guard.
 - Using the three point entry allows the operator to enter the operator's compartment with ease.
 - Open step on right side with handgrip optional.

ERGONOMICS

★ 4 Position Tilt Wheel



★ Storage Compartment

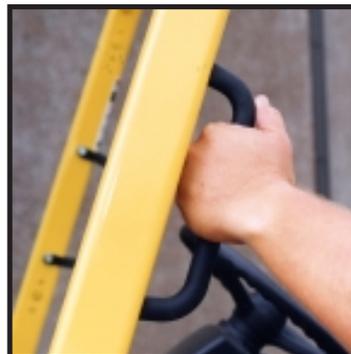
★ Single Directional Lever

★ Hand Operated Parking Brake

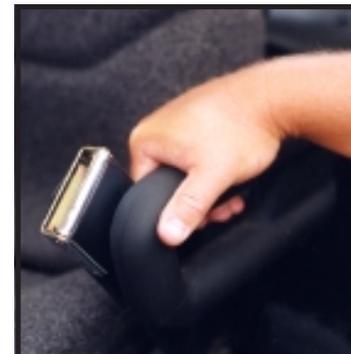
★ 3 Point Entry/Exit



1. Handgrip



2. Hip Restraint



3. Large Open Step



ERGONOMICS

- ★ (Suspended Operator Module)
 - Operator module is suspended on four elastomeric mounts to cushion the operator from road shock.
 - Offer variable spring rated to accommodate various loading conditions.
- ★ (Tilt Cylinders Mounted Under Floorplate)
 - Allows unrestricted operator foot movement.
 - Floorplates lift out without removing hardware or disconnecting any panel linkage.
- ★ (Monotrol Pedal)
 - Allows operator to change directions while keeping both hands on steering wheel or control hydraulic functions simultaneously.
- ★ (Hand Operated Parking Brake)
 - Parking brake is conveniently located on the instrument cowl just left of the steering column.
 - Tension adjustment can be made from operator's seat.

ERGONOMICS



★ Suspended Operator Module

★ Tilt Cylinders Mounted Under Floorplate



★ Monotrol Pedal



★ Seat Side Hydraulic Levers

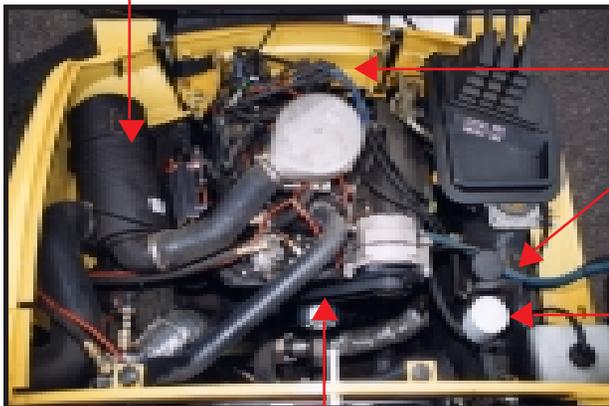


SERVICEABILITY

- ★ (Air Filter Access)
 - Air filter conveniently located under left front side of hood.
- ★ (Simplified Electrical Wiring)
 - Wire harness identification is permanently displayed on each wire.
 - Only 3 main wire harnesses make up each electrical system.
 - Truck is pre-wired for lights.
- ★ (Crankcase Filter Access)
 - Conveniently located under hood next to coolant reservoir for quick, easy access.
- ★ (Serpentine Belt - gas/LPG engine)
 - Single engine belt drives all engine related functions.
 - Reduces labor time.
 - Spring loaded tensioner maintains proper tension on belt.
- ★ (Cowl Mounted Fuse Panel)
 - Located in lower left hand side of instrument cowling for easy access to the automotive type fuses.
 - A protective cover protects fuse panel from weather.
- ★ (Hydrostatic Steer Axle)
 - Features spindles with tapered roller bearings for increasing life.
 - 8 lube points (2 on each tie rod, 2 on each king pin).
 - Requires no wheel alignment adjustment or routine service.
- ★ (Instrument Panel)
 - Instrument cluster contains a state of the art microprocessor which controls the gauges, hour meter and a standard engine shutdown system.
 - Engine shutdown system monitors coolant temperature, engine oil pressure and transmission temperature.
 - Optional operator lockout keypad prevents unauthorized operators from starting truck.

SERVICEABILITY

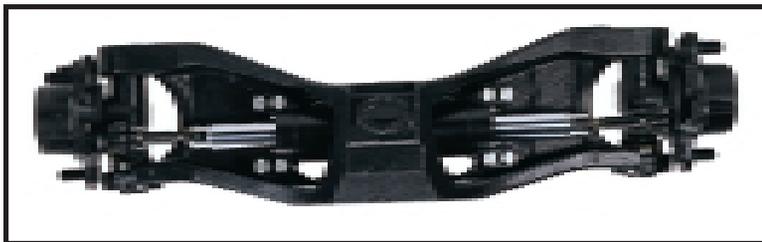
★ Air Filter Access



★ Simplified Electrical Wiring

★ Crankcase Filter Access

★ Serpentine Belt (Gas Engine)



★ Hydrostatic Steer Axle



★ Cowl Mounted Fuse Panel



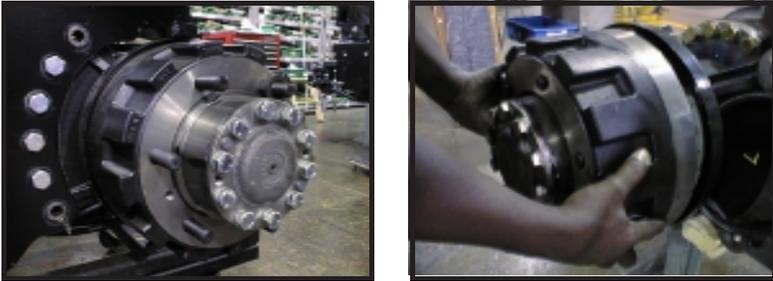
★ Lighted Instrument Panel

SERVICEABILITY

- ★ (Simplifies Removal of Brake Drum)
 - ➔ Service of the brake shoes is simplified by using removable drums (automotive style).
- ★ (Forward Pivoting Hood)
 - ➔ Lever located behind operators seat releases gas spring assisted hood to access engine and routine service points.
- ★ (Removable/Rear Hinged Side Panels)
 - ➔ Provides easy access to the air filter and battery.
- ★ (Optional Radiator Screen)
- ★ (Radiator Cap Access)
 - ➔ Radiator cap can be accessed from behind the operators seat and removing cover exposing cap.
 - ➔ Top cover can be removed with just three allen head screws.
- ★ (Transmission Fill/Check Access)
 - ➔ A lift up panel on right side of floorplate in front of acceleration pedal allows easy access to transmission fluid dipstick.
- ★ (Swing Out Battery Tray)
 - ➔ Allows easy access to battery for removal.
 - ➔ Swings out independent of the hood side panel.
- ★ (Coolant Reservoir)
 - ➔ Located under hood behind battery.
 - ➔ Allows convenient access for checking or adding coolant as required.

SERVICEABILITY

- ★ Simplified Removal of Brake Drums



- ★ Optional Radiator Screen
- ★ Removeable Rear Hinged Side Panels

- ★ Forward Pivoting Hood



- ★ Radiator Cap Access



- ★ Transmission Fill/Check Access

- ★ Swing Out Battery Tray

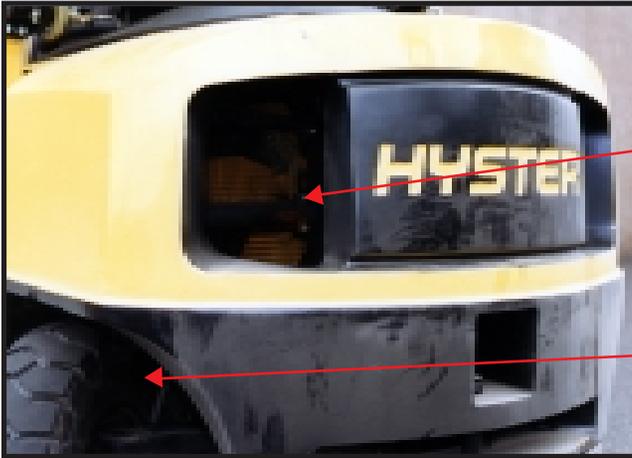
- ★ Coolant Reservoir



NOISE CONTROL

- ★ (Cooling Fan Location)
 - ➔ Fan mounted on counterweight side decreases the amount of noise in operator compartment.
- ★ (Hydraulic Pump Location)
 - ➔ Has also been located inside the counterweight area to further reduce noise in operator compartment.
 - ➔ Pump is driven off crankshaft via a power takeoff shaft.
 - ➔ Access to hydraulic pump can be gained through ports in counterweight behind steer tires.
- ★ (Integral Cab)
 - ➔ Insulated, one piece, all welded cab shields operator from noise outside compartment through sound absorbing material in cab.
- ★ (Unitized Frame)
 - ➔ One piece, all welded frame reduces noise when traveling over rough, uneven terrain.
 - ➔ Hydraulic and gasoline tanks are also welded onto frame to further control noise levels over rough and uneven terrain.

NOISE CONTROL



★ Cooling Fan Location

★ Hydraulic Pump Location



★ Unitized Frame



★ Integral Cab

NOISE CONTROL

- ★ (Grid Style Overhead Guard)
 - Grid style design allows noise to pass through overhead guard rather than bounce back into operator compartment.
- ★ (Sealed Panel Joints)
 - All panels are sealed with rubber stripping to further reduce engine compartment noise in operator compartment.
- ★ (Booted Hydraulic Levers)
 - Levers are booted to reduce engine compartment noise in operator compartment.
- ★ (Thick Floormat)
 - Thick, rubber floormat further reduces the amount of engine and transmission noise in operator compartment.

NOISE CONTROL

★ Grid Style
Overhead Guard



★ Sealed
Panel
Joints



★ Thick
Floormat



★ Booted Hydraulic Levers

VISIBILITY

- ★ (Global Vista Mast)
 - ➔ Good visibility is attained with 2-stage LFL and 3-stage FFL masts through widely spaced channels.
 - ➔ Third and fourth function header hoses are internally mounted.
- ★ (Grid Style Overhead Guard)
 - ➔ Design allows operator better view of loads as they are being raised/lowered above overhead guard.
- ★ (Integral Hook Sideshift)
 - ➔ Visibility has been dramatically increased versus hang-on sideshifts.
- ★ (Backlit Instrument Panel)
 - ➔ The instruments are enclosed in a molded housing, mounted onto the right side of the steering column on the dash for convenient operator viewing.
 - ➔ Gauges are backlit for brighter imaging in low light conditions.

VISIBILITY



★ Vista Mast & Integral Sideshift



★ Grid Style Overhead Guard

★ Back Lit Instrument Panel

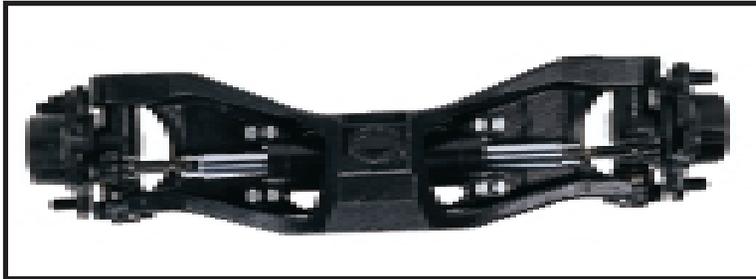


VIBRATION CONTROL

- ★ (Steer Axle)
 - Axle is made of ductile iron which allows steer axle to flex slightly under heavy impacts.
 - Is mounted in large front and rear rubber bushings to help absorb the shock loads when driving over uneven surfaces.
- ★ (Unitized Frame)
 - Frame is welded into one piece to prevent possibilities of bolts coming loose while driving over rough, uneven surfaces.
- ★ (Operator Module)
 - Is suspended on four elastomeric mounts to isolate the driver from irritating vibration and to cushion the driver from road shock.
 - Mounts incorporate a snubber cap and off variable springs rated to accommodate various loading conditions.
- ★ (Variable Spring Rated Engine Mounts)
 - Unique variable spring rated engine mounts can also accommodate various loading conditions.

VIBRATION CONTROL

★ Steer Axle



★ Unitized Frame



★ Operator Module

★ Variable Spring Rated
Engine Mounts

STYLING

- ★ (Instrument Cowl)
 - Smooth rounded corners on the dash and cowl liner which are molded from an impact resistant urethane.
 - Small diameter steering wheel - 19".
- ★ (Cooling Air Outlets)
 - The counterweight has large cooling air outlets which enhance the styling appearance.
- ★ (Modern Integral Cab)
 - Replaces the standard overhead guard, has sliding side windows, rearward opening doors, front and rear wipers, lower view windows on right and left doors, excellent visibility through front, rear, right, left and top glass.
- ★ (Smooth Rounded Hood, Steering Column, Frame, and Counterweight)
 - New state of the art styling provides truck with aerodynamic appearance.

STYLING

★ Instrument Cowl



★ Cooling Air Outlets



★ Modern Integral Cab



★ Smooth Rounded Hood, Steering Column, Frame, & Counterweight



PRODUCTIVITY FEATURES AND BENEFITS

QUICK AND EASY OPERATOR ENTRY AND EXIT

The new H70-120XM is designed to provide convenient operator on/off access for productive operation.



Easy on/off operator access

- Large open steps provided on both sides of the truck were carefully designed and positioned to allow quick and convenient on/off access (*H70-80XM, H90XMS: 17.7" & H100-120XM: 19.4"*).
- The step tread design provides secure footing when entering and exiting the truck.
- Soft touch handgrips on the left and right overhead guard leg along with hip restraints on the seat provide a secure grip for operator entry and exit.
- A four position, adjustable steering column can be pivoted away from the operator to provide additional space for entry and exit.
- Hip restraint and retractable seat belt help to secure the operator and allow smooth, unrestricted seat entry and exit.
- Tilt cylinders are mounted below the floor plate to allow unrestricted operator foot movement.

A COMFORTABLE OPERATOR IS A PRODUCTIVE OPERATOR

Realizing the amount of time a lift truck operator spends on the lift truck, the H70-120XM was designed to reduce operator fatigue and provide the necessary comfort an operator needs for productive operation.

- Standard seat is a vinyl non-suspension seat with forward and rearward adjustment with seat belt and hip restraints.
- Optional seats include a choice of a vinyl or cloth full-suspension seat with forward, rearward, back angle and seat firmness adjustment
 - Full-suspension seat allows the seat belt to travel with the seat and operator during the suspension stroke.
 - Designed to allow the top surface of the backrest to act as an arm rest area.
 - Side area of backrest is scalloped inward to act as an arm hook.
 - Backrest traverse curve allows easy operator rotation
 - Narrow upper region allows elbow swing
 - Wide lower portion of the seat adds to side restraint and operator comfort
- Three-position seat back adjustment allows the most productive operator position.
- The steering column can be adjusted to four different positions with a latch located on the lower left side of the column, to allow the most comfortable and productive position for the operator.
- Engine air intake noise is shielded from the operator's ear by mounting the air duct on the outer side of the overhead guard leg.
- The LPG fuel tank mount bracket is designed to swing outward 90 degrees to allow easy access for tank replacement without having to lift up over the rear of the truck.
- An optional all weather cab provides operator comfort in varying weather conditions. *(Refer to All Weather Cab section)*



Optional full-suspension seat



Adjustable steering wheel and column

- A small diameter steering wheel designed with soft-touch material minimizes operator arm movement for quick and precise maneuverability.
- A thick floor mat provides a softer feel to the feet of the operator while minimizing unwanted noises and vibration.
- Hydraulic control levers are designed with ergonomically shaped ends, molded with “soft-touch” material for operator comfort and positioned seat side at an off-set angle to conform to the operator’s comfort zone.



Small diameter steering wheel

- This reduces the amount of reaching that an operator would have to do in an eight-hour shift.
- An open center hydraulic control valve combined with hydraulic lever position reduces fatigue from constant lever actuation.
 - The open center hydraulic control valve allows oil to constantly flow through the valve and system, rather than build up pressure at the valve. This allows smooth and easy actuation of the hydraulic levers.
- Low brake pedal effort by utilizing a vacuum boost system.
- The parking brake lever is ergonomically positioned for a direct pull with the operator’s left hand to provide actuation with less effort. A release button on top of the handle is provided for additional ease of operation.
- An unobstructed floor area provides convenient accessibility of foot controls.
- The standard truck is provided with a Monotrol pedal, which also acts as the speed control. An optional column mounted directional control lever is also available.
- The hydrostatic steering system reduces operator fatigue and allows for smooth, precise steering control and low steer effort for increased productivity by:
 - Eliminating steering kickback and steering wander.



Monotrol provided as standard equipment

- ◆ Hydraulically activated steering reduces the force necessary for an operator to steer the truck.
- ◆ Fixed length tie rods on the steer axle eliminates steer wander.
- ◆ Tapered roller bearings allow for smooth, consistent steering.
- ◆ Equal area, double-ended cylinder provides equal number of turns in each direction.
- The steering axle is mounted in elastomeric mounts to dampen shock loads to the steering axle assembly, truck and operator.
- Rubber engine compression mounts and mounts positioned between the frame and operator's compartment, isolate the operator from vibration
- The H70-120XM exhaust system is designed to reduce noise and remove heat from the truck
 - Exhaust directs gases through numerous small holes in a metal housing (an integral part of the muffler) and diffuses exhaust gases into the engine cooling airflow.
 - Muffler is mounted in the frame between the radiator and counterweight on rubber mounts. It is designed to reduce noise and heat radiation.
 - An optional overhead exhaust, available on gas, LPG and diesel engines, is routed through the counterweight and up the right rear side of the overhead guard away from the operator. This option is also available with a cab.
- The overhead guard, with interlaced steel bars on edge, allows noise to flow out of the operator's area allowing for a more pleasant working atmosphere.



LPG tank swings out 90°



Interlaced steel bar on edge overhead guard

OPERATOR VISIBILITY INCREASES PRODUCTIVITY

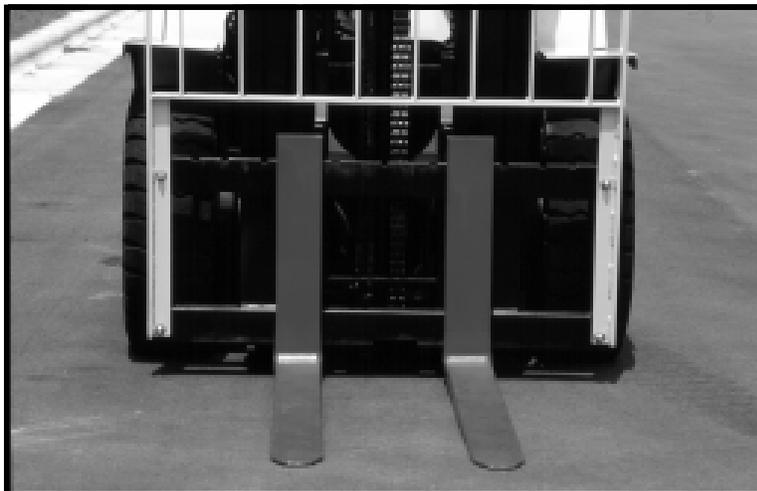
Hyster lift trucks are designed with operator visibility as an important factor of productivity .



Excellent visibility through VISTA mast

- VISTA mast, overhead guard, carriage or integral sideshift adds to productivity by providing excellent operator visibility for precise load placement and removal.
 - Mast design consists of small diameter lift cylinders positioned behind widely spaced outer mast channels and carefully placed cross members.
- An open design carriage provides excellent load and fork visibility.
- A new integral sideshift carriage has been designed with the cylinders built into the upper bar, thereby opening up the center for improved operator visibility.

- The overhead guard is made up of interlaced flat steel bars on edge allowing improved visibility for overhead stacking.
- Optional all weather cab design adds to operator visibility. (*Refer to All Weather Cab section*)



Open carriage design

SHORTER CYCLE TIMES THROUGH EXCELLENT TRUCK MANEUVERABILITY ADDS TO PRODUCTIVITY

Maneuverability makes up a large part of the production work cycle, by which customer profit is impacted. The new H70-120XM lift trucks provide the edge on maneuverability for better cycle times.

- Hydrostatic steering, along with fixed length tie rods on the steering axle eliminates steer wander, a big factor in truck maneuverability.
- An open-center, rotary actuated hand pump (or steering control unit) meters oil to the steering cylinder as the steering wheel is turned, allowing quick and precise maneuverability.
- An equal area, double-ended steering cylinder produces a balanced steering system with only 4.3 turns lock-to-lock.



Hydrostatic steering

SIMPLIFIED DAILY CHECKS GET OPERATORS TO WORK FASTER

The H70-120XM lift trucks are designed for quick and easy service checks to allow the operator to begin working in the shortest amount of time.

- Raising a hinged panel on the right side beneath the floor mat, and pulling the dipstick makes transmission oil checks easy.
- A large backlit instrument panel display is positioned on the right of the dash to allow convenient operator viewing.
 - Module display utilizes gauges and warning lights for optimum operator awareness.
 - All warning lights light-up for testing when the key switch is turned toward the “start position” prior to engine starting.
- A forward pivoting hood design incorporates two gas spring cylinder assists to aid in raising the hood, and to hold it in place in the raised position.

- The engine oil dipstick is accessible from the front, left side of the engine compartment.
- A coolant recovery bottle is provided on the rear, right side for quick and easy coolant checks.



Forward pivoting hood and removable side panels

CONVENIENT COMPARTMENTS PROVIDE OPERATOR STORAGE

Storage for clipboards, notebooks or other items used during a work shift is a much needed option for any lift truck operator. The H70-120XM was designed with this in mind.

- A storage compartment is provided on the right side of the dash, between the steer column and dash display. This compartment provides excellent storage for clipboards, pencils, pull tags and many other items. Another area for storage is located directly behind the hydraulic levers for small items such as pens, pencils or markers.



Convenient storage areas provided

TRUCK CONFIGURATION TO MEET CUSTOMER NEEDS

CAPACITIES TO MATCH THE APPLICATION

The H70-120XM series of trucks provide six different models and capacities.



MODEL	CAPACITY
◆ H70XM	7,000 lb. @ 24" L.C.
◆ H80XM	8,000 lb. @ 24" L.C.
H90XMS	9,000 lb. @ 24" L.C.
◆ H100XM	10,000 lb. @ 24" L.C.
◆ H110XM	11,000 lb. @ 24" L.C.
H120XM	12,000 lb. @ 24" L.C.

- ◆ *These models when configured with 2-stage and no attachment will rate an additional 500 pounds.*

CHOICE OF TWO ENGINES FOR OPTIMUM PERFORMANCE

To provide the performance a customer requires for a particular application, the H70-120XM series offers powerful and productive engines.

- A GM 4.3.L gas/LPG engine is the standard engine.
 - Designed with a high-energy ignition that eliminates servicing points, increases spark plug life and provides easier starting.
 - Hydraulic lifters that require no adjustments.
 - Hardened exhaust and intake valve seats for use with unleaded fuel and LPG and extended cylinder head life
 - Cast iron block and heads provide extended wear and are less susceptible to heat damage than aluminum.
 - Electronic governor increases available power in the upper speed range for optimum engine performance.
 - An Electronic Control Module (ECM) on the gas engine controls the spark and fuel functions.
 - A full pressure lubrication system has a spin-on; full flow, 10 micron oil filter that has a relief valve to provide engine lubrication even if the filter becomes clogged.

- Coolant is routed through the intake manifold for improved cooling which results in a top-performing engine.
- Fan positioned on the counterweight side, provides excellent cooling for productive performance and allows more room in the engine compartment for servicing accessibility.
- A crankcase ventilation filter allows fresh air to be pulled into the crankcase, and prevents contamination, which could eventually wear out engine components.
- Serpentine belt provides top performance from alternator and water pump.
- Also available is an optional Perkins 1004.4, 4.23L diesel engine.
 - Naturally aspirated and direct injected for excellent fuel economy, low emissions and meets EPA emission regulations.
 - Cast iron block and head extending below the crankshaft for added strength.
 - Full pressure lubrication system with a spin-on, full-flow 10 micron oil filter that has a relief valve to provide engine lubrication even if the filter becomes clogged.
 - High-grade, cast iron, uni-flow cylinder heads provides more complete combustion for top performance.
 - Rotary distributor fuel pump pin-timed to provide absolute accuracy of injection for low emission operation.
 - Fastram combustion chamber converts more fuel into power and wastes less to exhaust gas.
 - Enhanced unaided cold starting down to -15°C.



GM 4.3 liter engine



Optional Perkins diesel engine

H70-120XM ENGINE AIR INTAKE SYSTEM FOR DEPENDABLE OPERATION

With two powerful and economical engine choices available, design factors have been incorporated to keep contaminants out of the system for smooth, dependable operation.

- The standard air intake is designed into the top, left, rear overhead guard leg to allow clean air to be pulled into the system.
 - Air is pulled into the intake and drawn down through the overhead guard leg into the air filter housing.
- New design air filter housing swirls the air around the filter and spins any contaminants outward.
- Final filtration is accomplished by a replaceable, vaneless dry-paper element.
 - The air is then pulled through a hose leading from the filter to the engine air inlet.
- A heavy-duty air cleaner with high-mount pre-cleaner is available as an option.



High engine air intake

THREE SEAT CHOICES OFFER THE RIGHT CONFIGURATION FOR COMFORT AND OPERATION

The seat on a lift truck must be comfortable due to the amount of time the operator spends in the seat. The H70-120XM has a choice of three different seats for operator comfort.

- Standard seat is a vinyl non-suspension seat with forward and rearward adjustment with seat belt and hip restraints.
- Optional seats include a choice of a vinyl or cloth full-suspension seat with forward, rearward, back angle and seat firmness adjustment



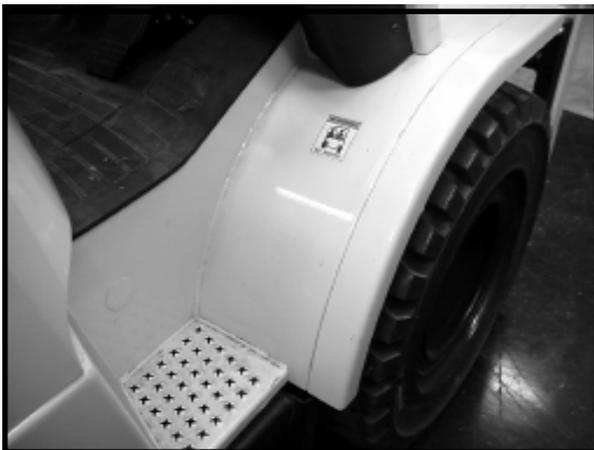
- Full-suspension seat allows the seat belt to travel also during the suspension stroke.
- Designed to allow the top surface of the backrest to act as an arm rest area.
- Side area of backrest is scalloped inward to act as an arm hook.
- Back rest traverse curve allows easy operator rotation
- Narrow upper region allows elbow swing
- Wide portion of the seat provides ample side restraint and comfort



Optional full-suspension seat

A CHOICE OF TIRES AND TREAD TO MEET CUSTOMER REQUIREMENTS

Not every application will require the same type of tire or tread. A choice of tires and tread are available for the H70-120XM lift truck series.



Optional wide-tread single or dual-drive tires

- In addition to the standard tread, there is the optional wide tread-single or dual drive tires.
- Pneumatic, solid and radial tires are available as an option.

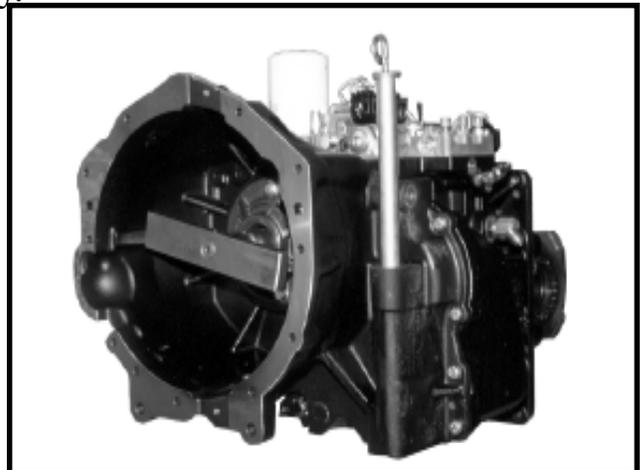
CHOICE OF TWO TRANSMISSIONS DEPENDABLE AND RELIABLE OPERATION

A top of the line lift truck like the H70-120XM requires a strong, reliable transmission capable of withstanding the rigors of tough, enduring lift truck applications. Two transmissions are available to meet the demanding application requirements of the H70-120XM series of trucks. Hyster Company takes pride in their workmanship.

- Single Speed Powershift Transmission (Standard on H70-80XM, H90XMS)
 - Single speed, forward and reverse
- Two Speed Autoshift Transmission (Optional on H70-80XM, H90XMS and Standard on H100-120XM)
 - Two speed forward and one reverse
 - ◆ The high/low shift in forward is controlled by a microprocessor electronic control. The controller receives its signal from a speed sensor on the transmission case. With the direction selector forward, the shift from low to high gear occurs at 9 mph. The shift from high to low occurs at 8 mph.
 - ◆ When traveling in reverse and shifting into forward, the controller will shift into high forward if the truck speed is above 3 mph, and then shift into low gear at 3 mph before shifting into high gear at 9 mph.
- Both transmissions are shifted by electric solenoids actuated by the forward/reverse shift lever or Monotrol pedal.
- Transmission oil cooler, located in the radiator helps to provide efficient performance, reliability and dependability.
 - The oil cooler helps reduce wear on the clutches and promote long life. In case of overheating, a sending unit in the oil sump turns on a warning light in the instrument module, which is part of the engine shutdown system.
- Transmission has an externally mounted spin-on filter mounted on the control valve.
- Helical transmission gears are used to reduce noise.



Column mounted lever optional



- A drain port provides easy removal of transmission fluid. Fluid replacement is accomplished through the filler tube.
- To shield against excessive fluid pressure, a relief valve is provided in the control valve.

OPTIONAL ALL WEATHER CAB

Working in inclement weather can be more productive with a durable ergonomically designed all weather cab. The optional cab on the H70-120XM meets all of the qualifications.

- An optional all weather cab provides operator comfort in varying weather conditions.
 - Constructed with special tubing which has recesses that allow flush fitting windscreens and doors without the need for additional seals and supports
 - Tempered front glass with a parallelogram type wiper with washer to provide a large sweep over viewing area.
 - Tempered rear glass with wiper and washer.
 - Top panel utilizes a large scratch-resistant, polycarbonate screen that wraps around the front corner for improved visibility.
 - Flush mounted outside doors
 - Removable hinged doors with gas spring assist, holds the door in the open position.
 - Sliding upper door glass
 - Heater/defroster with 2-speed fan with outside air intake
 - Rear circulating fan mounted to the right rear corner of the cab defrosts the rear screen in the winter months and can be used to provide air circulation in summer months.
 - A dome light on the inside of the cab is provided on the top, right side.

MAST, CARRIAGE, FORKS AND INTEGRAL SIDESHIFT TO MATCH THE JOB REQUIREMENT

In order for a lift truck to be effective, a combination of mast, carriage and forks and often attachments must be able to take advantage of high overhead storage space and be able to work under low overhead conditions.

- Varied mast lift heights in 2-Stage limited free-lift and 3-stage full free-lift
- Choice of three carriage widths
- Fork lengths to suit most applications
- New optional integral hook type sideshift
 - Sideshift cylinders built into the upper carriage bar improve load handling capabilities as well as operator visibility.
 - ◆ Sideshift is provided when the cylinder rod extends outward from the ends of the upper carriage bar.
 - Integral design increases capacity by reducing lost-load normally found with hang-on attachments.



Varied mast heights available



New side shift cylinder design

CODES AND STANDARDS COMPLIANCE

ALL HYSTER LIFT TRUCKS MEET CODES AND STANDARDS AS SPECIFIED BY OSHA AND UNDERWRITERS LABORATORIES INC.

Certain customers require all trucks brought into their facility, comply with certain codes and standards. The customer can be assured that all Hyster internal combustion lift trucks are in conformance with U.L.

- The H70-120XM series trucks comply with the following codes and standards:
 - CEN/TC 150 WG10 Final Draft – Industrial Truck EMC
 - ANSI B56.1-1969 and subsequent revisions of ANSI B56.1 in effect when the truck is built.
 - UL 558

APPEARANCE ENHANCEMENTS

SENSE OF PRIDE IS ESTABLISHED WITH A TRUCK OPERATORS LIKE AND ENJOY OPERATING

Most lift truck operators appreciate an ergonomically designed lift truck, with a nice appearance. A sense of pride is established when operating a top of the line model with all the latest features and comforts necessary to be productive.

- Designed with the rounded XM family styling
- Optional full-suspension seat designed with new features to enhance operator comfort.
- Optional new all weather cab design
- New dash display
- New counterweight design with large cooling outlets
- Open design carriage and integral hook sideshift



OPERATING COST REDUCTION FEATURES AND BENEFITS

STRONG DEPENDABLE FRAME ALLOWS LOW OPERATING COSTS

When you hear the word frame, you think about a foundation to build on. In order to build on that frame, it has to be strong and top quality. The H70-120XM frame is a prime example of a top quality foundation on which to build a top quality lift truck.

- Finite Element Modeling (F.E.M.) combined with Computer Aided Design (C.A.D.) is used to optimize high stress areas for extended service life.
 - **Finite Element Modeling:** *The process of inputting dimensional and material specifications of a lift truck into a computer to create a computer representation. The Engineers apply loads to the computer model. The computer mathematically calculates the stresses imposed by the test loads. This process shows the engineers where the stress peaks are located.*
- Unitized (all welded) frame is stress tested to confirm design specifications.

FAST, CONVENIENT COMPONENT ACCESS REDUCES DOWNTIME

Component accessibility is very critical to a customer when servicing is necessary. Hyster has designed the H70-120XM to allow quick and easy component access thereby reducing downtime.



Easy access for transmission oil

- The new XM designed instrument module provides several checks previously done manually. These checks include:
 - coolant level
 - clogged air cleaner element
 - low brake fluid level
 - water separator conditions (Diesel Trucks)
- The transmission can easily be checked through a small hinged access cover in the floor plate beneath the floor mat.



Easy access to components



Outboard mounted drum brakes

- Removal of two boltless floor plates and mats provides access to the:
 - transmission control valve
 - transmission filter
 - master cylinder
 - brake and accelerator linkages.
- A forward pivoting hood and two swing out panels allows excellent access for routine service checks such as radiator condition, engine oil, hydraulic oil, hoses and belts.
- For more extensive service work, two hinged side panels can be pivoted rearward easily removed for complete engine accessibility.
- Outboard mounted drum brakes may be accessed for inspection or service by simply removing the wheels and drum brakes. No axle removal required.
- High-pressure hydraulics allows for smaller components, which in turn provides additional room for service accessibility.

ENGINE SHUTDOWN SYSTEM REDUCES POSSIBLE ENGINE REPLACEMENT COSTS

In a productive atmosphere, one of the worst things that could happen to a customer is to lose a lift truck engine. The new H70-120XM series trucks are designed to reduce this possibility.

- Engine shutdown system is provided as standard equipment on all XM trucks
- System is controlled by a microprocessor in the instrument module.
 - The system will activate a buzzer if the engine oil pressure falls below 2 psi, if the engine coolant temperature exceeds 250° F or if the transmission temperature exceeds 270° F.
 - When the shutdown circuit is activated it sounds an alarm for 30 seconds then activates the engine shutdown relay and de-energizes the engine ignition.

- To reset the system the key switch must be cycled from “on” to “off” and then back “on”.
- The system will allow the truck to operate for another 30 seconds before shutdown to allow the truck to “limp” back for maintenance.
- This cycle may be repeated indefinitely.
- The alarm will continue to sound as long as there is a condition activating the shutdown circuit.



Engine shut-down system controlled through instrument module

HYDROSTATIC STEERING SYSTEM REDUCES COMPONENTRY AND SERVICING

Hyster Company released the hydrostatic steering system in 1968 and has since continued to improve the design. Hydrostatic steering eliminates most steer system problems and makes most repairs quick and inexpensive

- Hydrostatic means that mechanical components are replaced with hydraulic lines, which result in fewer parts to wear fewer adjustments and less replacement expense.
- Tapered roller bearing spindle mounting lasts much longer and eliminates adjustment for wear.
 - Pre-loaded to absorb wear and maintain spindle alignment.
 - ◆ *The cone shaped inner race, outer race and bearing sink deeper within them as wear occurs. The cone shape maintains radial alignment in spite of wear.*
 - Inner race (not found on needle bearings) greatly reduces possibility of spindle damage and associated replacement or repair cost.
- Elastomeric rubber mounts allow axle articulation without needing lubrication. *They also reduce road shocks to axle, truck, battery, driver and load.*
- Fixed length tie rods eliminate adjustments.
 - *The reduction in wear brought about by the use of tapered roller bearings and the elimination of wearing mechanical components eliminate the need for adjustable tie rods. The steer cylinder acts directly on each spindle with only a short, strong, fixed length tie rod between each end of the cylinder*



Hydrostatic steering reduces componentry

and its spindle.

- Mounting the double-ended steer cylinder entirely within the axle reduces stress on the steer axle mountings.
 - *By locating the steer cylinder within the axle itself, the cylinder is shielded against possible damage. Steer wheel-actuating forces are contained within that single casting.*
- Bolt-in end caps reduce cylinder maintenance and increase durability compared to screw-in end caps.
- Cast ductile iron axle frame has extremely long service life:
 - Casting allows use of thicker metal at peak load points.
 - Flexes to absorb shock.

CUSTOMER'S SAVINGS WITH PRE-WIRED ELECTRICAL AUXILIARIES

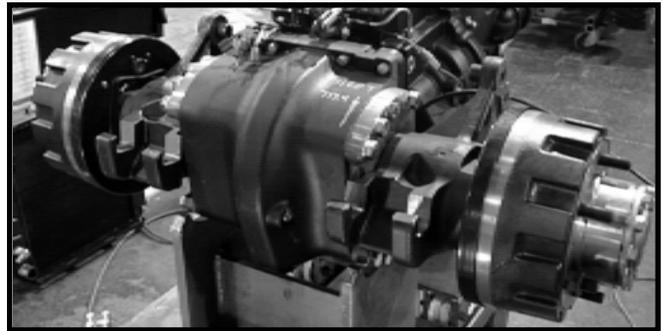
The H70-1120XM truck has built-in allowances for additional lights. Pre-wired electrical auxiliaries are cost savings to the customer by not having to rewire the truck.

- Two brake and two back-up lights are provided as standard equipment.
 - Two drive one rear and stop tail lights are options that can be added. All H70-120XM trucks are pre-wired to allow quick and easy installation of additional lights, eliminating long periods of downtime.
 - Factory wiring extends to the base of the overhead guard legs.
- Switch locations are included in the dash panel.

STRONG DURABLE DRIVE AXLE WITHSTANDS HEAVY SHOCK LOADING, REDUCING DOWNTIME AND ADDED COSTS

A strong drive axle is a necessity when lifting, lowering, transporting and depositing capacity loads. All Hyster lift trucks are designed with a drive axle strong enough to match the application.

- Cast metal housing designed to absorb high shock loads and support the weight of the truck.
 - Load shock is impacted on the axle housing and large tapered roller wheel bearings instead of on the axle shaft. This called a “full floating” drive axle, which is noted for its durability.
- Brake assemblies are mounted to the drive axle hanger brackets in the frame, so the frame rather than the powertrain absorb the brake torsional loads.
 - Automatic brake adjusters compensate for lining wear.
 - Brake drums are removable without having to remove the axle.
- Wheel hubs rotate on large tapered roller bearings for smooth dependable operation.



“Full Floating” drive axle

GREATER ENERGY EFFICIENCY WITH HIGH PRESSURE HYDRAULICS

The hydraulic system on the H70-120XM lift trucks is designed to provide smooth and efficient operation for maximum productivity.



Easily actuated hydraulic levers

- An open-center hydraulic valve provides smooth actuation of hydraulic levers for precise load placement and reduced product damage.
- High-pressure hydraulics allow the use of small hydraulic lines and components such as, slim diameter lift cylinders that provide fast lift/ lower speeds.
- In-line, return full flow filtration keeps contaminants out of the system and reduces the possibility of cavitation.

LOW MAINTENANCE COSTS AND EXTENDED SERVICE LIFE WITH THE HYSTER VISTA MAST

Starting out with non-telescoping, cable operated masts and progressing to the VISTA mast, it's evident that great strides have been taken in the development of masts used on Hyster lift trucks. The H70-120XM combines dependability, low maintenance costs and extended service life for excellent customer savings.

- The H70-120XM features an inverted “J”-hook mast mounting which allows top access for quick and easy removal or installation and reduced downtime.
 - Mounting pins are equipped with steel backed bronze bushings and lube fittings to extend service life.
- Rolled steel mast channels resist flaring to provide added strength for long dependable operation.
- Canted load rollers reduce lateral movement to provide smooth mast operation. Fewer rollers mean less maintenance
- Full roller design utilizes pre-lubed full complement ball bearings equipped with contact seals, to retain lubricant and exclude contaminants.
- The full-radius angled roller design eliminates channel web milling to lengthen the mast readjustment interval and improve mast service life.
- Leaf type chains are used on all VISTA masts due to its greater strength for cross section size.
- Widely spaced channels reduce mast twisting as well as increasing visibility through the mast.

- Hydraulic cushioning is used to reduce the impact of transition shock between free-lift and main cylinder lifting (phasing).
- All cylinder rods are chrome plated for reduced wear, improved resistance to corrosion and scoring, more positive sealing and longer seal life.
- Rod wipers are used to reduce the entrance of contamination into the cylinders and thus increase service life.
- Lower mast and carriage rollers may be replaced without the need for lifting mast channels or the carriage out of the mast. Instead, they may be lowered below the bottom of the mast. This makes job site replacement practical and eliminates the need for costly transport to the shop and the extended downtime which can result.
- All H70-120XM carriages utilize six load rollers that allow for longer service life.
 - Optional side thrust rollers



Dependable VISTA mast