

Hyster Covers and Access Panels



ABS plastic rear cover with mounting hardware



Service compartment with access doors open

View of service compartment with rear cover removed and access doors open

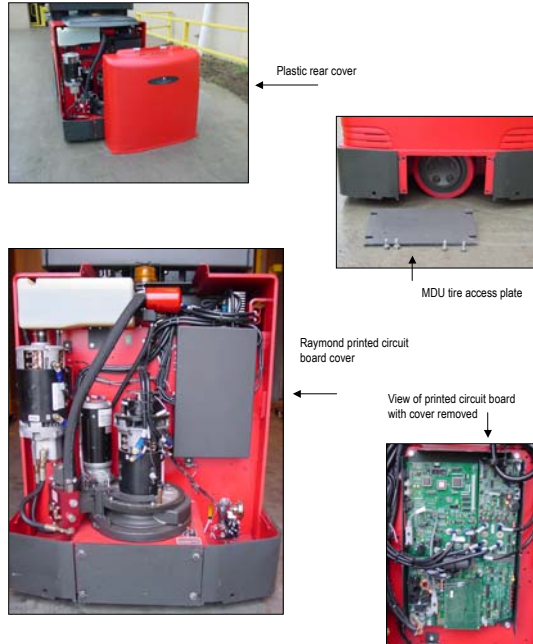


The Hyster R30XM₂ service compartment features swing open metal doors and a U.L. approved rear cover.

The doors are hinged for easy swing open access and are secured with two thumb screws, which require no tools to remove. Metal doors protect the motors and electrical compartment in the event the truck is backed into a rack. Additionally, raised forks from another lift truck will be prevented from protruding into the motor compartment.

The rear top cover is made of an ABS plastic. Four spring loaded quarter-turn fasteners secure the top cover. These screws are spring loaded for quick, easy removal and installation. The fasteners are secured to the cover with a small retaining clip so the fasteners are actually a part of the cover assembly, eliminating the chance of misplacing hardware.

Raymond Covers and Access Panels



Raymond does a good job on cover removal and installation on the order picker. Much like the Crown SP3020-30 order picker, at first glance, the Raymond OPC030TT order picker appears to be a sleek, stylish, clean looking truck; that is until the covers are removed and the very expensive and complex electrical system is exposed.

The Raymond OPC030TT features a plastic polymer lift off (no tools required) service compartment cover. The plastic cover does not offer the same level of protection as the Hyster R30XM₂'s swing open metal doors. Sharp or protruding objects hanging off a rack could possibly penetrate through the plastic rear cover of the OPC030TT into the service compartment, and cause component damage resulting in major repair expenses.

The printed circuit boards are protected by a clip on (no tools required) metal cover. This cover must be removed before wire identification, wire tracing or trouble shooting can begin.

The MDU (Master Drive Unit) tire has a steel access plate. The access plate must be removed in order to inspect or change the steer tire (4 bolts secure the drive tire access plate). The MDU tire access plate can be easily damaged and bent. Damage to the access plate will cause problems in removal and installation.

The Hyster order pickers feature a MDU tire cut out for quick, easy inspection and servicing. There is no access plate or mounting hardware to remove and install.

Hyster Electric Foot Switch



Flush mounted electric foot switch



Ergonomically positioned foot switch

View of operator activating the foot switch and pallet clamp release pedal



The Hyster R30XM₂ electric foot switch is ergonomically positioned on the operator platform. The operator can stand in his/her natural position and comfortably activate the foot switch.

The switch is counter-sunk into the platform's anti-slip floor mat. When the foot switch is activated, the operator's foot is cushioned by the rubber floor mat. The one inch thick rubber floor mat cushions the operator for a smooth, more comfortable ride.

This innovative design by Hyster Company enhances operator comfort and productivity, while reducing operator foot and leg fatigue.

Raymond Electric Foot Switch



The Raymond electric foot switch is a pedal type design. This design causes the operator to lift his/her leg each and every time in order to activate the foot switch, which contributes to operator leg fatigue.

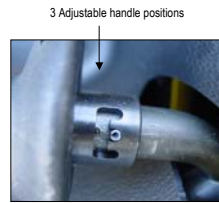
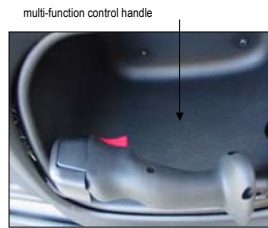
The foot switch has the same rubber covering as the floor mat. The foot switch, when activated, becomes flush with the floor mat which provides a comfortable position and stance for the operator.

The floor mat is .5 inches thick and has round raised bubbles for cushioning and to act as a anti-slip mat. The Hyster R30XM₂ floor mat is a full 1 inch thick. Therefore, the R30XM₂ provides twice the cushion as compared to the Raymond floor mat, resulting in a smoother, more comfortable ride.

Hyster Accelerator Control Handle and Hydraulic Control Functions



Ergonomically positioned multi-function control handle ↑



The Hyster multi-function control handle is ergonomically designed and positioned. The angle of the handle provides the operator the opportunity to drive the truck comfortably either MDU end first or fork end first. The handle is designed to fit in the palm. The slender handle body is shaped and contoured to comfortably fit in various hand sizes. The handle is scalloped at the bottom allowing the hand to stay in position and to provide a hand rest.

The multi-function handle is designed with three adjustable locking positions, or angles. This feature allows the operator to adjust the handle to a position that is the most comfortable and productive to them.

The multi-function handle is used in conjunction with the alphanumeric display during setup and/or to set or adjust truck performance parameters.

The accelerator switch is a hall effect sensor, an electrical solid state device. Hall effect sensors have fewer wearable parts, require much less adjustment, and are not as vibration sensitive as potentiometers.

Additionally, the adjustable console (optional) further enhances operator comfort and productivity by allowing six inches of vertical travel of the entire console assembly. This feature puts the controls and instrument panel in the position that works best for each individual.

These state-of-the art designs of the Hyster R30XM₂ provide the operator the opportunity to become one with the truck. Various size operators will enjoy the modern ergonomic advantages of this truck over the competition.

Raymond Accelerator Control Handle and Hydraulic Control Functions



The Raymond multi-function accelerator handle is similar to the Hyster design. The handle design is intuitive like that of the Hyster multi-function accelerator handle. The rotary thumb lift/lower controls are located at the end of the handle and can be easily activated. However, there are several disadvantages to the Raymond design as compared to the Hyster accelerator design.

1. The handle position on the Raymond truck is not as ergonomically positioned / angled to allow the operator's hand to be in it's natural position and activate the handle controls.
2. The Raymond handle is not equipped with a palm rest or scalloped at the bottom of the handle to assure proper hand positioning and hand support.
3. The Raymond handle does not have adjustable handle angle positions.
4. Raymond does not offer an adjustable console, therefore, operators driving in applications where the primary means of travel is in the fork first direction may find it difficult to operate.

The Raymond multi-function control handle uses a potentiometer (variable resistor) as the accelerator switch, unlike the Hyster R30XM₂ which utilizes a hall effect sensor for the accelerator switch. Potentiometers have several disadvantages as compared to a hall effect sensor:

1. Potentiometers(variable resistors) have more wearable parts
2. Potentiometers require more adjustments to maintain proper voltage outputs
3. Potentiometers are more vibration sensitive
4. Potentiometers are less efficient, less reliable and less durable

Hyster Electrical System



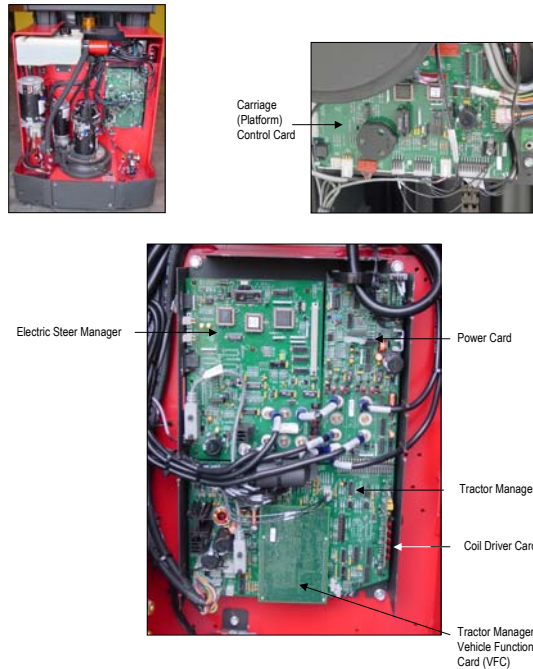
The Hyster Electrical control system features the Curtis 1310 Master Control Unit (MCU, the brains of the truck) and Controller Area Network (CAN bus) communications. This state of the art technology provides the R30XM₂ series with one of the industry's most advanced electrical systems.

The CANbus communication system reduces the number of, over the mast electrical conductors, from 27 'strands' down to 8, which greatly improves durability and reliability. The following solid state devices are connected by the CANbus link; the Curtis 1310 MCU and the Curtis 1243 traction controller, the Inmotion APS (Advanced Power Steering) and the Inmotion Wire Guidance (optional) unit.

The traction system is controlled by a Curtis 1243 transistor controller which utilizes MOSFET (Metal Oxide Semiconductor Field Effect Transistor) technology. The 1243 controller changes direction of the current to the traction motor in response to directional changes via the operator through the multi-function control handle. The transistor traction controller eliminates the need for forward and reverse contactors, improving performance, reliability and reducing maintenance costs.

Curtis and Inmotion (formerly Atlas Copco) are manufacturers of electrical solid state devices used throughout the lift truck industry here in North America, as well as in Europe.

Raymond Electrical System

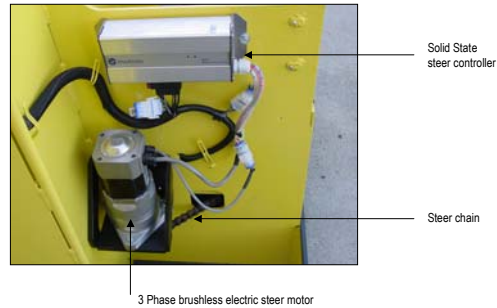


The Raymond electrical system consists of a lot of proprietary parts. Proprietary parts are very expensive.

The Raymond Corporation designed and developed this electrical system. Therefore, the customer is limited to Raymond service technicians working on the equipment (or the customer is responsible for his service technician). The technician is required to purchase a Raymond handset in order to communicate / interface with the electrical system when trouble shooting. In addition, there is a serial port for PC interface, but the customer must purchase the software in order to communicate to the electrical system.

As can be seen, this is a much more complex electrical system compared to the Hyster electrical system. It is estimated that each of these cards are around \$1,800 each, excluding labor to remove or install. In addition, there is troubleshooting time to determine which one of the components are bad or causing the malfunction.

Hyster Steer System

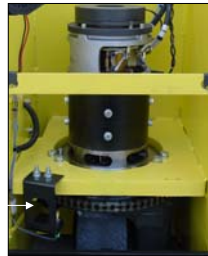


Standard RTC (Return To Center) steering

Optional Multi-turn steering disk



Steer angle encoder



The R30XM₂ features an Inmotion (formerly Atlas Copco) gear motor and transistor controller. This steer system utilizes a three-phase brushless DC motor with integral gear box assembly and a solid state steer controller which is linked to the CAN bus communication system. The brushless steer motor means there are no brushes to service (maintenance free), resulting in reduced maintenance costs and increased reliability.

This steer system is equipped with a proximity switch that automatically centers the steer-wheel at each start up. This assures the operator of the direction of travel each and every time the key switch is turned on, regardless of the steer tire position when the truck was turned off.

RTC (Return To Center) steering is standard on the R30XM₂. This unique electric steering design allows the steer tire to return-to-center whenever the operator releases the steer handle. Optional multi-turn steering is also available on the R30XM₂ at no charge for those individuals that prefer this style of steering.

Raymond Steer System



Multi-turn steering disk



Electric steer motor

The Raymond steer system features multi-turn steering. Raymond does not offer an RTC (Return To Center) steering. The multi-turn steer system is similar to the optional Hyster multi-turn steer system in that the steer disc and spinner knob are located to the left of the operator (Tractor end first).

The Raymond steer motor will require brush inspection and / or replacement to maintain proper performance, resulting in increased maintenance costs and truck downtime. The Hyster R30XM₂ features a brushless steer motor and requires no maintenance.

The Raymond steer system features a gear driven MDU (master drive unit) in lieu of the chain driven design. This is a good and reliable design and not much can be noted as a disadvantage other than to adjust or repair this system may be more involved and time consuming than the Hyster chain driven design. The chain driven design on the Hyster R30XM₂ is easily accessible and can be adjusted in just a matter of minutes.

Hyster Operator Platform



The Hyster R30XM₂ operator compartment is full of operator and ergonomic amenities.

Standard is the overhead guard mounted light and fan package. Each light and fan package includes a fixed work light, a dome light and a 2 speed fan. The fan cover features adjustable louvers to provide ventilation to the operator.

The rubber coated gas-cylinder-assist retractable sidegates (standard) enhance operator safety and comfort while reducing operator fatigue.

The 2 speed full ventilation body fan (optional) provides maximum ventilation directed toward the operator's mid-section. This is especially beneficial for applications requiring the safety glass windshield in place of the standard wire mesh screen.

The adjustable console (optional) provides six inches of vertical travel to enhance operator comfort and put the controls just where each individual operator feels the most comfortable and productive. NOTE: The adjustable console option is strongly recommended when specifying a truck in which the operator drives the truck in the fork first direction as the primary direction of travel.

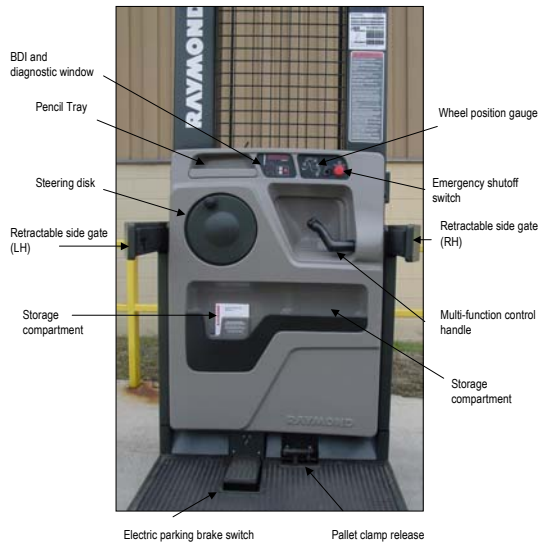
The adjustable 3 position multi-function control handle (standard) further enhances operator comfort.

The one inch thick floor mat provides a shock absorbent rubber that is ribbed for anti-slip protection as well as comfort.

The console cover features storage pockets, a removable trash bin, pencil tray and a cup holder.

Corner posts are available through the Application Engineering department, and offer the operator added protection. The corner post option is required in applications where the truck may be used in right angle stacking situations.

Raymond Operator Platform



The Raymond operator platform features many of the same amenities as the Hyster R30XM₂. The Raymond operator platform consists of the following features:

- Instrument Panel - The dash panel has push buttons for programmable performance settings (password or code protected). The dash also has an MDU (Master Drive Unit) wheel position gauge. The key switch and emergency disconnect button is also a part of the dash panel. In addition, there is a BDI(Battery Discharge Indicator) and a diagnostic window.
- Raymond offers multi-turn steer only. There is no RTC option available.
- The accelerator handle is a multi-function control handle that features variable lift / lower, forward and reverse functions, and a horn.
- There is a pencil tray and storage compartment molded into the console cover which is standard, like the R30XM₂ series.
- The electric parking brake switch is a pedal design.
- Automatic pallet clamping jaws are standard. There is a pallet clamp release pedal located at the floorboard area, similar to the R30XM₂ design.
- An anti-slip rubber floor mat is only .5 inches thick as compared to the Hyster floor mat that measures 1 inch thick. The Hyster R30XM₂ provides more cushion for a more comfortable ride and reduced operator fatigue.