FEATURES BROCHURE

RAYMOND® TRUCKS AND TOW TRACTORS

ATTENTION

You may want to consider one or more of the following features if one or more of your pallet handling lift trucks operate in certain environments.

Please note: Some of these features create potential hazards that would not exist in their absence. Accordingly, these features should be selected only after careful consideration.

PURPOSE

Raymond products are designed to comply with the American National Standards Institute — Safety Standard For Low Lift and High Lift Trucks, ANSI/ ITSDF B56.1; Safety Standard for Driverless, Automatic Guided Industrial Vehicles and Automated Functions of Manned Industrial Vehicles, ANSI/ITSDF B56.5; Safety Standard for Operator Controlled Industrial Tow Tractors, ANSI/ITSDF B56.9 (as applicable); and The United States Department of Labor's Occupational Safety and Health Standards for Powered Industrial Trucks, 29 C.F.R. 1910.178. In their standard configuration, Raymond products minimize overall operational risk across the entire range of anticipated environments of use. For particular environments of use, however, modifications to this standard configuration may further decrease risk for those particular applications. This brochure is designed to acquaint the customer with some of the features available for use with Raymond trucks and tow tractors. Please carefully review this brochure and discuss with your Raymond Dealer those features that may have utility in your specific application. These features may be ordered with a new truck or may be added to lift trucks already in operation.

If your environment changes you should also consider whether any features should be removed or modified.

RAYMOND

This list may be revised and individual items added or withdrawn at any time. Not all features offered by The Raymond Corporation are included in this brochure.

Additional features/configurations may also be available from Raymond. Specific inquires will be evaluated upon request. Additionally, these features may also have application to other than the particular models listed.

Ask your Raymond Dealer for more information.

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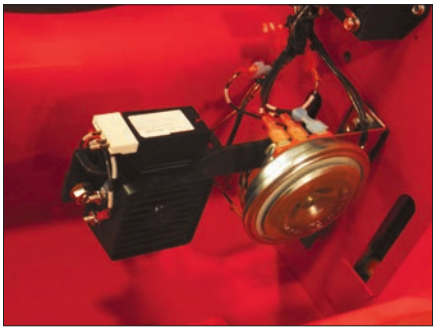
LIGHTS AND ALARMS

AUDIBLE ALARM:

(Motion or Back-up, Fixed or Variable Sound Levels)



Raymond lift trucks are designed to provide excellent visibility to the operator when traveling in either the forks leading or forks trailing mode. Each lift truck is equipped with a horn as standard equipment. The horn serves as a device to warn pedestrians and other truck operators of the presence of a truck. Accordingly, an operator is normally able to see pedestrians or other truck operators and warn them of a truck's presence. In certain environments of use, however, there may be a high level of pedestrian traffic, some of whom may be unfamiliar with lift trucks and their operational characteristics. Depending on operating environment ambient noise levels, an alarm may help to increase recognition of a lift truck by pedestrians and the operators of other trucks. This does not eliminate the requirement for the operator to utilize the horn and to follow their training regarding operating lift trucks around pedestrians. This feature is available in the forks leading or forks trailing travel modes or all travel. The alarm is high-pitched and automatically activates when the operator places the truck in the designated travel mode.

APPLICATION CONSIDERATIONS:

+ Multiple alarms may be distracting and create confusion and indifference
+ Effectiveness depends on environment of use, including proximity of non-operators and/or pedestrians, ambient noise level in area, and numbers and types of equipment in use
+ Habitual use over time can reduce effectiveness of the alarm
+ May decrease operator and pedestrian vigilance and attentiveness
+ May distract or annoy adjacent property owners, other lift truck operators, and pedestrians

MODELS

+ All

TRAVEL LIGHT:

In certain environments of use, an operator must travel from a well lit area to an area of low light. In such environments, travel lights may assist an operator by illuminating the path of travel. Lights also may assist visibility when loading and unloading over the road trucks. Operation travel lights are available singly or in pairs and are automatically activated to illuminate the aisle when the operator activates the travel control.

APPLICATION CONSIDERATIONS:

+ May distract other operators or pedestrians in the same aisle or area
+ May interfere with other operations in adjacent aisles

MODELS

+ EASi Orderpicker, EASi Reach/Deep-Reach/Straddle, 5000 Series, 7000 Series, 71, 76, 9300, 9400, 9600, 9700, 9800

WORK LIGHTS:

Certain load handling situations require more light than that provided by existing warehouse lighting systems. Work area lights provide light to illuminate dimly-lit storage areas. As a consequence, work lights may thereby reduce operator eyestrain and increase productivity. The lights are individually adjustable by the operator to the application requirements.

APPLICATION CONSIDERATIONS:

+ May distract other operators or pedestrians in the same area
+ May interfere with other operations in adjacent aisles

MODELS

+ EASi Orderpicker, EASi Pacer™, EASi Reach/Deep-Reach/Straddle, EASi Swing-Reach®, 3030, 4000 Series, 5000 Series, 7000 Series, 71, 76, 8210, 8250, 8310, 8410, 8510, 8530, 8610, 8630, 8720, 8810, 8900, 8910, 9300, 9400, 9600, 9700, 9800

COMPARTMENT LIGHT:

The quality of warehouse lighting may vary throughout the warehouse. In this situation, an operator may have difficulty reading paperwork. Auxiliary lighting may be mounted across the overhead guard to ensure adequate lighting for the operator.

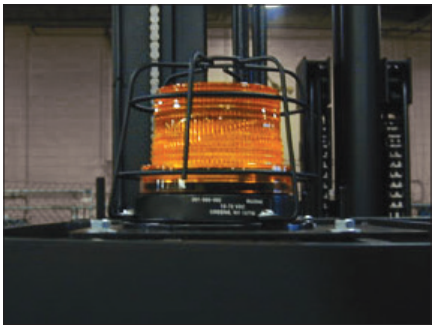
APPLICATION CONSIDERATIONS:

+ May not be appropriate for use in cold storage environments

MODELS

+ EASi Swing-Reach®, 4000 Series, 5000 Series, EASi Orderpicker, 9600, 9700, 9800

WARNING LIGHT:



Raymond lift trucks are designed to provide excellent visibility when an operator is traveling in either the forks leading or forks trailing mode. Each lift truck is equipped with a horn as standard equipment. The horn serves as a device to warn pedestrians and other truck operators of the presence of a truck. Accordingly, an operator is normally able to see pedestrians or other truck operators and warn them of a truck's presence. In certain environments of use, there may be a high level of pedestrian traffic, some of whom may be unfamiliar with lift trucks and their operational characteristics. Additionally, some environments present high levels of ambient noise, making the horn and/or an audible travel alarm feature difficult to hear. The warning light may assist in providing an indication of a lift truck 's presence. This does not eliminate the requirement for the operator to utilize the horn and to follow their training regarding operating lift trucks around pedestrians.

APPLICATION CONSIDERATIONS:

+ Multiple lights in the same area may create confusion or indifference
+ Effectiveness depends upon environment of use, including proximity of non-operators and/or pedestrians, light level in area, and numbers and types of equipment in use
+ On certain trucks the overhead clearance is decreased
+ Habitual use over time can reduce the effectiveness of the light
+ May decrease operator and pedestrian vigilance and attentiveness
+ May distract or annoy other lift truck operators and pedestrians
+ May distract or reduce visibility (operator, pedestrian and efficiency concerns)

MODELS

+ EASi Orderpicker, EASi Pacer™, EASi Reach/Deep-Reach/Straddle, EASi Swing-Reach®, RAS, RSS, RRS, RCS, 4000 Series, 5000 Series, 6210, 7000 Series, 71, 76, 9300, 9400, 9600, 9700, 9800

FLOOR SPOT LIGHT:

Raymond lift trucks are designed to provide excellent visibility when an operator is traveling in either the forks leading or forks trailing mode. Each lift truck is equipped with a horn as standard equipment. The horn serves as a device to warn pedestrians and other truck operators of the truck's presence. Accordingly, an operator is normally able to see pedestrians or other truck operators and warn them of a truck's presence. In certain environments of use, there may be a high level of pedestrian traffic, some of whom may be unfamiliar with lift trucks and their operational characteristics. Additionally, some environments present high levels of ambient noise, making the horn and/or an audible travel alarm feature difficult to hear. The floor spot light may assist in providing an indication of a lift truck 's presence by projecting a spot ahead of its path of travel and in certain environments of use delineate a given distance from a lift truck. This does not eliminate the requirement for the operator to utilize the horn and to follow their training regarding operating lift trucks around pedestrians. This feature is available in the forks leading or the forks trailing direction. If it is applicable, the light(s) may be set to activate when the truck is traveling in the direction the light is projecting.

APPLICATION CONSIDERATIONS:

+ Multiple lights in the same area may create confusion or indifference
+ Effectiveness depends upon environment of use, including proximity to the floor spot light, ambient light conditions in the area, angle at which the floor spot light is observed, floor finish and reflectivity and number and type of equipment in use
+ Light effectiveness / visibility may vary significantly within a single environment
+ Habitual use over time can reduce effectiveness of the floor spot light
+ May decrease operator and pedestrian vigilance and attentiveness as they may rely on the floor spot light rather than follow their training
+ May distract or annoy other operators and pedestrians
+ May encourage pedestrians and other operators to focus their attention on the floor instead of making eye contact with operators
+ Your eyes may become adjusted to the lights, making it temporarily difficult to see.
+ If other vehicles in the same warehouse are not equipped in a consistent manner, it may cause confusion for operators and pedestrians
+ May increase truck width, length or overhead clearance on some models
+ In some applications the floor spot light might be contacted by items in the environment such that damage to the floor spot light could occur or the light beam's aim could be diverted from the area intended by the customer
+ The customer is in the best position to evaluate their application, the distance that a floor spot light should be pointed from the truck, and how the light will be activated
+ To the extent the customer feels further training on Pedestrian Safety may be beneficial, rather than adding devices, they may want to consider Raymond's pedestrian safety program "Steps to Safety – Pedestrian Safety in a Material Handling Environment"

MODELS

+ 3020, 3030, 4000 Series, 5000 Series, 7000 Series, 8530, 8630, 9600, 9700

FLOOR ZONE LIGHTS:

Raymond lift trucks are designed to provide excellent visibility. Accordingly, an operator is normally able to see pedestrians or other truck operators and warn them of a truck's presence. Each lift truck is equipped with a horn as standard equipment. The horn serves as a device to warn pedestrians and other truck operators of the truck's presence. Also, pedestrians must always follow their workplace rules regarding the separation of pedestrians and lift truck traffic. In certain areas of your environments of use, there may be a high level of pedestrian traffic. Additionally, some environments present high levels of ambient noise, making the horn and/or an audible travel alarm feature difficult to hear. Zone lights may consist of straight lines to the sides of the truck or an arc behind the truck. The floor zone or arc light may assist in providing an indication of a specific distance from the lift truck that pedestrians should not stand or walk into by projecting a line on the floor near the truck. This does not eliminate the requirement for the operator to utilize the horn and to follow their training regarding operating lift trucks around pedestrians. Nor does this eliminate the requirement that pedestrians and operators remain aware of each other and follow their training including but not limited to making eye contact and looking in the direction of travel.

APPLICATION CONSIDERATIONS:

+ Multiple lights in the same area may create confusion or indifference
+ Effectiveness depends upon environment of use, including proximity to the zone light, ambient light conditions in the area, angle at which the zone light is observed, floor finish and reflectivity and number and type of equipment in use
+ Light effectiveness / visibility may vary significantly within a single environment
+ Habitual use over time can reduce effectiveness of the zone light
+ May decrease operator and pedestrian vigilance and attentiveness as they may rely on the zone light rather than follow their training
+ May distract or annoy other operators and pedestrians
+ The location of the zone light line is not an indication of the direction of impending truck movement. Lift trucks can turn quickly within their plan view which can cause the truck's tail to swing outward.
+ May encourage pedestrians and other operators to focus their attention on the floor instead of making eye contact with operators
+ Your eyes may become adjusted to the lights, making it temporarily difficult to see
+ If other vehicles in the same warehouse are not equipped in a consistent manner, it may cause confusion for operators and pedestrians
+ May increase truck width, length or overhead clearance on some models
+ May be ineffective within aisles because of light interference with rack and/or loads
+ In some applications the zone light might be contacted by items in the environment such that damage to the zone light could occur or the light beam's aim could be diverted from the area intended by the customer
+ The customer is in the best position to evaluate their application and the distance that a zone light should be pointed from the truck.
+ To the extent the customer feels further training on pedestrian safety may be beneficial, rather than adding devices, they may want to consider Raymond's pedestrian safety program "Steps to Safety – Pedestrian Safety in a Material Handling Environment"

MODELS

+ 4460, 4750, 4760, 5000 Series, 7000 Series, 9600, 9700

BARRIERS AND GUARDS

LOAD BACKREST:

In certain operating environments of use, high palletized loads or loads stacked higher than the height of the carriage or tractor (pallet truck) must be handled. The load backrest is an extension of the carriage or tractor height and serves to stabilize and provide additional support for such loads. As a consequence, the expanded load backrest extension assists in preventing material from falling and reduces load damage.

APPLICATION CONSIDERATIONS:

+ Increases extended height of the truck, which may interfere with ceiling clearance
+ Decreases the amount of free lift by the same amount that the carriage height increases
+ May interfere with battery installation and removal on some models
+ May impair order picking on some models

MODELS

+ EASi Pacer™, EASi Reach/Deep-Reach/Straddle, 102XM, 3010, 4000 Series, 7000 Series, 8210, 8250, 8300, 8310, 8400, 8410, 8500, 8510, 8530, 8720, 8810, 8900, 8910

REAR OPERATOR GUARD:

In certain environments of use, there is a heightened risk that objects such as bar stock, lumber, pipe, and similar materials may protrude into the operator's compartment. The rear guard is available to provide additional protection against incidental intrusions, which may occur in narrow aisles during slow maneuvering. It will not provide protection against all intrusions, particularly those that can result from significant impacts. The full length rear guard is designed to protect the operator's lower body. The partial guard is designed to protect the small of the operator's back. Neither guard replaces the truck frame in protecting the operator. The guards are not intended to force the operator to remain in the compartment.

In a typical work environment of use, operators of stand-up narrow aisle trucks must get on and off many times during a shift for a variety of reasons. Because of the operator's frequent entrances and exits from the operator's compartment and to facilitate ease of entering and exiting Raymond lift trucks, they have been designed in their standard configuration with an open back so as to minimize obstructions and interference. In the case of emergency, such as the unit tipping over or going off a dock, the operator's unobstructed and rapid exit from the operator's compartment is very important. In such emergencies, the operator is better off leaving the vehicle than staying with it and "riding out" the occurrence. Increasing the time required to exit the truck will dramatically increase the risk of serious injury to the operator. Accordingly, rear guards are not recommended for units operating on or near loading docks.

APPLICATION CONSIDERATIONS:

+ May hinder or slow the operator's escape from the truck and significantly increase the chance of a serious injury in the event of a tip over or off the dock incident
+ Increase chance of amputation or serious injury of operator's foot and/or leg if operator has partially exited the compartment when a rear collision occurs
+ Increased chance of injury when operator is trapped or stuck by a damaged guard or crushed by a collapsed door pushed into the compartment
+ Increase heat build-up in compartment, which encourages improper use of the guard
+ Increase pinch or catch points for racking, product, operator's body or clothing
+ Contributes to operator discomfort
+ Will increase aisle width requirements and/or reduce operating clearances

MODELS

+ EASi Pacer™, EASi Reach/Deep-Reach/Straddle, 4100, 4150, 4200, 4250, 7000 Series, 8900, 8910

PALLET HANDLING UNIT PLATFORM BARRIER:

(Other Configurations Available)

Raymond 9600, 9700 Swing-Reach and the EASi Swing-Reach trucks are dual purpose trucks. These trucks can be used for full pallet handling and for the full range of order picking tasks, such as case picking, inventory, and product verification. In certain applications, however, the order picking capability is not necessary. For these applications, a Pallet Handling Unit Platform Barrier may be added to enhance an operator's feeling of security at elevated heights and may further inhibit materials from entering into the operator's compartment. The barrier comes in two different configurations: wide barrier and narrow barrier. Also see "Guard Rail System With 3-Bar Sidegate."

APPLICATION CONSIDERATIONS:

+ Reduces and restricts platform space
+ Impairs order picking
+ Difficult to dismount the truck when in a narrow aisle

MODELS

+ EASi Swing-Reach®, 9600, 9700

REAR VERTICAL POSTS/ EXTENDED BACKREST:

Universal Stack-Stance Configuration

Dockstance Configuration

In some environments of use, the first level horizontal rack beams are higher than the top of the lift truck power section and lower than the overhead guard. In such a situation, the potential exists for the power section to under ride the rack beam. This potential can be heightened when the truck is being maneuvered to right angle stack in an aisle with minimal clearance and/or when lower storage locations are empty. To avoid this situation, the customer should:

+ Alter the design of their warehouse by adding a floor level rack beam
+ Lower the first level rack beam to a point below the height of the top of the lift truck power section
+ Add a rack beam at the level of the overhead guard.

If the customer is unwilling or unable to alter the shelf heights, then equipping the truck with this feature may be considered. The posts or backrest are available to provide additional protection against incidental intrusions, which may occur in narrow aisles during right angle stacking or slow maneuvering. They will not provide protection against all intrusions into the operator's compartment. For trucks using a universal stack-stance compartment, rear vertical posts are installed on each side of the operator's compartment extending to the overhead guard. For trucks using a dockstance compartment, a rear vertical post is installed on the left side of the truck and an extended backrest is installed on the right side.

APPLICATION CONSIDERATIONS:

+ Will increase turning radius for some models of trucks
+ Difficult to structure for drive-in racks
+ Creates additional hazards for drive-in racks and other narrow operations
+ Reduces visibility (operator, pedestrian, and efficiency concerns)
+ May be a nuisance to the operator
+ Increases pinch, shear, crush, and contact points

MODELS

+ EASi Pacer™, EASi Reach/Deep-Reach/Straddle, 4100, 4150, 4200, 4250, 7000 Series

HEAVY DUTY/STEEL BUMPER GUARD:

In certain environments of use there are tight maneuvering areas where the potential exists for incidental contact with the truck bumper which could result in damage to the truck. To avoid this situation or minimize the effects, the customer should alter the design of the warehouse to increase operating clearance and eliminate tight maneuvering areas. If the customer is unwilling or unable to alter the design of the warehouse then equipping the truck with this feature may be considered.

APPLICATION CONSIDERATIONS:

+ Will increase truck head length and tractor overall width.
+ Will increase turning radius requirements.
+ May decrease truck under-clearance on some models.

MODELS

+ 8400, 8410, 8500, 8510, 8600, 8610

FALL PROTECTION

HARNESSES AND TETHERS:

Platforms used for elevating personnel shall have a Fall Protection System consisting of either a restraining means such as a guard rail system or operator Fall Protection System. Accordingly, every Raymond Swing-Reach and orderpicker vehicle comes equipped with a Fall Protection System. Although Raymond has traditionally provided a personal fall protection system, there are certain requirements based on the weight of the operator regarding the configuration of a personal fall protection system and permissible components. See table below for configuration requirements.

RETRACTABLE TETHER:

Fall Protection / Prevention Device	**Operator Weight (lb / kg)**				
	< 220 lb (<100 kg)		**220-310 lb [1] (100-140 kg) [1]**		**> 310 lb [1] (>140 kg) [1]**
Full Body Harness	**X**	**X**	**X**	**X**	Contact Authorized Raymond Sales and Service Center
Energy Absorber - max total length 6 ft / 1820 mm		**X**	**X**		
Self Retracting Lanyard	**X**			**X**	
Maximum Arresting Force Permitted (lb / N)	1800/8000				

1) Truck Capacity shall be reduced by the operator(s) weight in excess of 220 lb (100 kg)

ENERGY ABSORBING TETHER:

FULL BODY HARNESS:

APPLICATION CONSIDERATIONS:

- Suitability of individual components of the Personal Fall Protection System dependent on weight of the operator.
- Suitability of the individual components of the Personal Fall Protection Systems further dependent on the material handling tasks to be performed.
- Facilitates order picking
- Suitability of the individual components of the Personal Fall Protection Systems further dependent on assessment of operator comfort and ease of use.

MODELS

+ EASi Orderpicker, EASi Swing-Reach®, 5000 Series, 9600, 9700, 9800

GUARD RAIL SYSTEM WITH 3-BAR SIDEGATE:

As an alternative to a personal Fall Protection System on certain models, a guard rail system with a 3-bar sidegate is available to serve as a mandated Fall Protection System. For additional potential utility, also see Pallet Handling Unit Platform Barrier.

APPLICATION CONSIDERATIONS:

+ Reduces and restricts platform space
+ Impairs order picking, particularly at floor level
+ If the sidegate is raised when elevated the operator must have their belt or harness and tether in place
+ Difficult to dismount the truck when in a narrow aisle

MODELS

+ EASi Swing-Reach®, 9600, 9700

iWAREHOUSE INTEGRATED TETHER SYSTEM:

Do not operate an operator-up lift truck unless your personal fall protection system (operator restraining device) is in place. The specific components of the fall protection system to be used are dependent on your weight. Make sure the full body harness is securely fastened to your torso. Then make sure the full body harness is securely fastened to the self-retracting lanyard snaphook. The self-retracting lanyard must also be securely fastened to the tether bar on the overhead guard.

In addition to the basic function of a harness and lanyard, the iWAREHOUSE® Integrated Tether System reinforces the need for operators to correctly attach their full body harness to the self-retracting lanyard before operating an operator-up truck. When configured to do so, this system will alert the operator both audibly and visually when a connection between the Integrated Tether System and the operator full body harness is not detected. The system may also apply limits to truck functions if configured to do so.

Operators should always follow their training and connect their harnesses/lanyards pursuant to their facility rules regardless of whether they are using the Integrated Tether System. Supervisors are still responsible for enforcing correct operating behavior for operators. Operators must always assume and maintain a proper operator position no matter what type of fall protection system is being used.

APPLICATION CONSIDERATIONS:

+ Certain functionality options may only be available on certain iWAREHOUSE-equipped lift trucks
+ If other vehicles in the same warehouse are not equipped in a consistent manner, it may cause confusion for operators or supervisors
+ Habituation may decrease operator vigilance and attentiveness; operators may rely on the Integrated Tether System rather than following their training
+ Habituation may also decrease supervisor vigilance and attentiveness. Supervisors may rely on the Integrated Tether System to monitor operators and reinforce correct behavior instead of actively supervising operators.
+ The Integrated Tether System does not detect whether an operator is wearing the correct PPE for their application
+ The Integrated Tether System is only intended to detect a connection between the snaphook and the operator full body harness. The Integrated Tether System cannot detect whether the harness is properly installed on the operator, or that the self-retracting lanyard is properly attached to the truck anchor point
+ Certain configurations of these systems may have the ability to record the number of occurrences of the connection between the Integrated Tether System and the operator harness not being detected during truck operation. This will allow a proactive supervisor to monitor operator practices, thereby giving the supervisor the information necessary to take appropriate corrective action.
+ The Integrated Tether System is only available for use in conjunction with a full body harness

Note: Please refer to the Harnesses and Tethers section of this brochure for additional limitations and considerations of fall protection systems.

MODELS

+ 5300, 5400, 5500, 5600, 9600, 9700

MISCELLANEOUS

AUXILIARY FORK CARRIAGE:

The standard fork carriage on sideloader trucks is versatile and suitable for handling a variety of loads. In certain environments, extra wide flexible loads must be handled. In those environments, the auxiliary fork carriage may be of assistance to the operator. The auxiliary fork carriage consists of two outboard forks mounted on a carriage that hangs on the fork bar of the standard fork carriage.

APPLICATION CONSIDERATIONS:

+ The size and width of the load must be considered when choosing the appropriate auxiliary fork carriage
+ The extended height is increased

MODELS

+ 71, 76, 9300, 9400

SIDEGATE POWER DISCONNECT SWITCH:

Raymond 9600, 9700 Swing-Reach, EASi Swing-Reach and Orderpicker products are equipped with sidegates, some of which are the flip-down type (for the Model 5200, flip-down sidegates are available as an added feature). The sidegates serve as an assist in defining the operator platform/compartment and to the operator in determining the outline of the platform/compartment. The design of Raymond 9600, 9700 Swing-Reach, EASi Swing-Reach and Orderpicker products facilitate the operator assuming the proper operating position through the placement of operator controls: multifunction control handles, steering wheel, and deadman brake pedal. In the standard configuration of Raymond 9600, 9700 Swing-Reach, EASi Swing-Reach and Orderpicker products, the deadman pedal must be depressed in order to travel, lift, lower, or perform load handling, and flip-down sidegates need not necessarily be in the down position for the truck to function. The positioning of the sidegates during operation should be determined by the customer. In certain applications, uniformity of multi-manufacturer fleet is of importance and a customer may determine that the flip-down sidegate should always be down during operations. Therefore, this feature is available, which will prevent lift, lower, travel, and load handling if this sidegate is not in the lowered position. In neither the standard configuration nor the optional configuration are the single bar sidegates part of the provided Fall Protection System.

APPLICATION CONSIDERATIONS:

+ Affects efficiency of order picking operation

MODELS

+ EASi Orderpicker, EASi Swing-Reach®, 5000 Series, 9600, 9700

OPTIONAL BED LENGTH:

(from 49-60 inches long)

The standard load bed is versatile and suitable for handling a variety of loads. In certain environments, however, a differently sized load bed may be of assistance because of the length and size of the load to be handled.

APPLICATION CONSIDERATIONS:

+ Working aisle clearances, guide rails, and intersecting aisles must be increased to accommodate optional bed

MODELS

+ 71, 76, 9300, 9400

MIRRORS:

Raymond lift trucks are designed to provide excellent visibility to the operator when traveling in either the forks leading or forks tailing mode. In certain environments, a mirror may assist an operator in viewing the sides of a Sit-Down Counterbalanced lift truck or an area that is not in that operator's direct view. An operator must always look in the direction of travel, even when a Sit-Down Counterbalanced lift truck is equipped with mirrors, because the view provided by a mirror is not as complete as that afforded by looking in the direction of travel.

APPLICATION CONSIDERATIONS:

+ May decrease operator vigilance and attentiveness
+ May distort image and depth perception
+ May impair forward or rear visibility depending on the mirror's mounting location
+ May be subject to vibrations, which can cause blurred images
+ Effectiveness depends upon conditions in the operating environment, including light, temperature, and moisture
+ May reduce operator's forward or rear visibility by reflecting light in the operator's eyes
+ Must be adjustable to accommodate various sized operators and are subject to misalignment

MODELS

+ All 4000 Series Sit-Down Counterbalanced Truck Models

LIFT LIMIT SWITCH WITH BYPASS:

In some operating environments, trucks must operate in areas having more than one clear stacking height dimension, such as bi-level warehouses where there are other forms of varying height clearance, including doorways and overhead obstructions. Operating at improper heights in these areas can result in truck, material, or building damage and could cause a truck to tip over. Under normal circumstances an operator operating a truck with caution, attentiveness, and diligence can ensure avoidance of these situations. In order to help ensure that an operator does not accidentally encounter overhead obstructions, a lift limit switch may be added to the truck. This feature will cut-out the lift when the switch is activated. To lift beyond this cut-out, a bypass switch mounted on the operator control panel must be activated while the standard lift control is activated.

APPLICATION CONSIDERATIONS:

+ Lift above the bypass height needs the use of both hands
+ Elevated height of the lift limit must be greater than the overall collapsed height of the truck

MODELS

+ EASi Orderpicker, EASi Pacer™, EASi Reach/Deep-Reach/Straddle, EASi Swing-Reach®, 4150, 4250, 4450, 5000 Series, 7000 Series, 71, 76, 9300, 9400, 9600, 9700, 9800

PALLET CLAMP AND CENTERING DEVICE:

Raymond Orderpickers in their standard configuration are equipped with a pallet clamp that will accommodate a center stringer width of 1.25" to 2". This clamp will accommodate the standard pallet found in most applications. In certain applications, however, customers may use other than these standard pallets. These non-standard pallets include those that are of composite composition or are a block pallet, which contain larger than normal center stringers. To enhance orderpicker interface with these non-standard pallets and to promote operator productivity, a Pallet Clamp accommodating a larger stringer width of 1.25" to 5" is available.

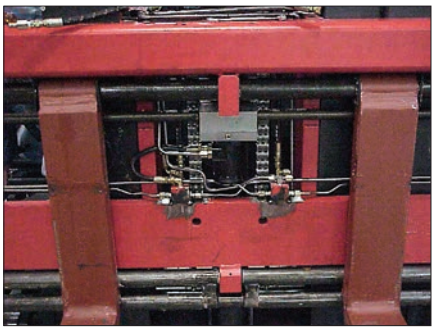
APPLICATION CONSIDERATIONS:

+ Can interfere with use of pick cart or other non-standard pallets

MODELS

+ EASi Orderpicker, 5000 Series

HYDRAULIC ADJUSTABLE FORKS:



The standard forks on the sideloader are moveable to accommodate loads of varying widths. In certain environments, however, loads of varying widths or heavily coiled or rolled items must be handled. In this case, hydraulic adjustable forks can be mounted on a bar carriage and are adjustable to accommodate an increased or decreased overall load width.

APPLICATION CONSIDERATIONS:

+ In some applications, fork tilt may not be available or corresponding fork tilt may be reduced
+ Full free lift will decrease
+ Load bed may decrease
+ Carriage height increases

MODELS

+ All Models 9300, 9400, 71, 76

LOAD WEIGHT INDICATOR:

It is incumbent upon an operator to ensure that the load being lifted is within the capacity of the truck. Warehouse managers must also ensure the sideloader is suitable for the material handling task to be performed. To assist in this regard, the sideloader is equipped with a specification plate detailing the truck's capacity which will need to be considered in relation to the weight of the load being lifts. The load weight is also something that an operator and supervisor must know in the course of performing or supervising the performance of materials handling. A load weight indicator may provide additional assistance to an operator confirming the information provided relative to the load weight.

APPLICATION CONSIDERATIONS:

+ Indicator provides only approximate weight of the load being lifted, subject to the limits of the accuracy and calibration of the device

MODELS

+ All Sideloader Models 9300, 9400

iWAREHOUSE EVOLUTION™:

SCALABLE TELEMATICS FOR MEASURABLE IMPROVEMENT

This telematics platform for fleet and warehouse optimization provides a comprehensive suite of solutions that collects and reports on vehicle and operator data to help drive productivity across your operations—for five vehicles or fifty, in one location or many. iWAREHOUSE Evolution provides a single, scalable solution with tools that range from battery monitoring to maintenance management, fleet optimization, labor management and professional services.

With iWAREHOUSE Essential™, take action against equipment, facility, and product abuse by limiting vehicle access, remotely configuring vehicle parameters by operator, and enabling electronic operator checklists to support regulatory requirements.

As part of iWAREHOUSE Evolution platform, your solution is scalable to incorporate enterprise-level features to meet your growing business needs. iWAREHOUSE Enterprise™ provides warehouse optimization solutions to help you improve labor productivity and lower costs, promote best practices in battery monitoring, manage your asset costs and maintenance, and further optimize your operations through enhanced visibility, data integration, trending analyses and customized reports.

The iWAREHOUSE GATEWAY® web portal puts actionable data at your fingertips, helping you to make more informed decisions anytime, anywhere.

APPLICATION CONSIDERATIONS:

+ iWAREHOUSE Evolution provides a scalable solution for operations of all sizes: those with smaller fleets looking to optimize operator and truck productivity should start with iWAREHOUSE Essential, while multi-facility operations and larger fleets looking for a broader return on investment should consider iWAREHOUSE Enterprise.

MODELS

+ All

VIRTUAL REALITY SIMULATOR:

Part of Raymond's complete suite of workforce education solutions, the Virtual Reality Simulator offers a cutting-edge tool to help develop more confident and efficient lift truck operators. The first of its kind in the industry, Raymond's patented sPort provides direct communication between the Virtual Reality Simulator (VR) and actual Raymond lift trucks. This capability offers users the experience of using actual lift trucks and lift truck controls while immersed in the most realistic virtual warehouse environment available. The system provides an engaging learning environment where operators can experience real-world challenges, receive real-time feedback from the Virtual Reality Simulator. Because the simulator is stationary, supervisors/instructors can observe, evaluate, and provide guidance from only feet away. The system can help to improve operator skills, enhance confidence, build expertise, and improve efficiency.

Connecting to, and disconnecting from, various Raymond lift trucks can be performed quickly and easily using little space beyond the area the lift truck is parked. The Virtual Reality Simulator software offers a wide array of Raymond lift truck models that can be switched effortlessly between available models for instruction on different lift trucks in your fleet. Virtual Reality Bucks (VR Bucks) are available for many models and are ideal for learning environments where the use of actual lift trucks may not be practical. Each truck model comes with a series of guided lessons that increase in complexity and build upon principles learned in earlier lessons, providing operators with a consistent experience while reinforcing desired behaviors.

In addition to a wide variety of Raymond lift trucks, the Virtual Reality Simulator can also be used with Raymond VR Bucks. VR Bucks can be plugged into a standard 110VAC wall outlet and can be used in a traditional classroom environment. Dependent on which optional vehicle licenses are purchased, only one VR Simulator is required to train individually on any compatible Raymond lift trucks, and all Raymond VR Bucks.

APPLICATION CONSIDERATIONS:

+ Provides an enhancement to traditional practical training methods
+ Can be used in conjunction with the actual physical trucks and truck controls operators will be trained on and using to do their job
+ Can be used in a classroom environment when used with Raymond VR Bucks.
+ Allows operators to practice in a stationary truck to develop, practice and improve skills
+ Can be used for screening new operators to decide appropriate (vehicle) assignments.
+ Can be used with existing operators of one model to determine if they are appropriate to cross-train on more complex models

MODELS

+ 5300/5500/5600, 7200/7300/7500/7520/7700/7720, 4150/4250 (require the use of a Raymond VR Dockstance Buck, or 7500/7520 Dockstance Reach-Fork Truck due to the hydraulic steering mechanism), 9600/9700, 8510, 8610, VRB-DS Dockstance Buck, VRB-FA Universal Stance Buck, and VRB-OP Orderpicker Buck

REAR VIEW CAMERA:

Raymond lift trucks are designed to provide excellent visibility to the operator when traveling in either the forks leading or forks trailing directions. In certain environments, a rear view camera may assist an operator in viewing an area that is not in the operator's direct view. An operator must always look in the direction of travel, even when a sit-down counterbalanced is equipped with rear view camera, because the view provided by the rear view camera is not as complete as that afforded by looking in the direction of travel.

APPLICATION CONSIDERATIONS:

+ May decrease operator vigilance and attentiveness
+ May distort image and depth perception
+ May decrease operator response due to image latency.
+ May be subject to vibrations, which can cause blurred images.
+ Effectiveness depends upon conditions in the operating environment, including light, temperature, and moisture
+ Visual aid to be used when the tractor side of the unit is in close proximity to other objects to minimize damage

MODELS

+ 4800 and 4810

TRAINING

SAFETY ON THE MOVE®:

(Operator Training Program)

SAFETY ON THE MOVE®

The safe and efficient use of material handling equipment depends, among other things, upon operators being properly trained. The United States Department of Labor Occupational Safety and Health Administration (OSHA) requires that employers ensure that only trained operators operate powered industrial trucks. OSHA further requires that employers implement methods to train operators. This training must address both the specific type of equipment they will use and the conditions and characteristics unique to their place of work. Safety On The Move is a training program that focuses on the most frequent hazards experienced by vehicles in the workplace: ramps, loading docks, corners, loads, lifting procedures, and pedestrian areas. Using a series of videos, this program takes the trainee through all aspects of the topic. The operator will learn how to control and operate lift trucks and how to abide by the "rules of the road" around the plant or warehouse.

APPLICATION CONSIDERATIONS:

+ Assists employers in complying with their duty to ensure that material handling equipment operators are properly trained
+ Assists in proper operation of equipment

MODELS

+ All

STEPS TO SAFETY™:

(Pedestrian Training Program)

STEPS TO SAFETY™

The safe and efficient use of material handling equipment depends on several things including training pedestrians to safely work alongside and interact with material handling equipment in operation. Steps to Safety is designed to create an awareness of general guidelines and precautions that pedestrians should follow in a material handling environment. This product helps employers satisfy their duty to provide their employees with a safe workplace, using a series of videos to train pedestrians in practices including how to interact with material handling equipment.

Steps to Safety introduces pedestrian safety concepts such as – "Stop, Look and Listen for Lift Truck Traffic" and "Be a Defensive Pedestrian". It also provides a tool to help employers satisfy their obligation to train all pedestrians regarding automated lift trucks. Steps to Safety encourages the application of the principles explained in the program to specific work environments and material handling processes.

APPLICATION CONSIDERATIONS:

+ Assists employers in complying with their duty to ensure that pedestrians are properly trained.
+ Assists in proper operation of equipment and interaction with that equipment.

MODELS

+ All

IN-AISLE DETECTION SYSTEM:

The United States Department of Labor Occupational Safety and Health Administration (OSHA) imposes a duty on employers to train and supervise operators. In the course of training, retraining, and supervising operators, reinforcement of proper operating practice may be advisable.

Raymond Very Narrow Aisle (VNA) lift trucks are designed to provide excellent visibility when an operator is traveling in either the forks leading or forks trailing mode. Each lift truck is equipped with a horn as standard equipment. The horn serves as a device to warn other truck operators of the truck's presence. Accordingly, an operator is normally able to see other truck operators, warn them of their truck's presence and bring the truck to a stop an appropriate distance away.

The In-Aisle Detection System feature is intended as a training reinforcement tool to provide notice regarding a truck's proximity to other objects that is consistent with customer facility rules in the warehouse environment. It is not intended as a replacement for the training requirement that an operator always look in the direction of travel, be aware of his or her proximity to other objects at all times, and follow their operator training.

The In Aisle Detection System uses a scanner to detect objects within an aisle in the tractor first direction. An In-Aisle Detection System truck must be equipped with wire guidance; the feature is only activated when the truck is locked on the wire. If an object is detected in the aisle, the truck equipped with In-Aisle Detection System will display "Sensor Stop" on the truck display, and an audible tone will sound. An In-Aisle Detection System equipped truck will then decelerate to a stop.

APPLICATION CONSIDERATIONS:

+ Detect objects that are located along the center of an aisle that are a minimum 9" wide. Only detects the part of an object that is approximately 8" off the ground
+ Will not detect an object in the forks first direction
+ Habituation may decrease operator vigilance and attentiveness; operators may rely on the In-Aisle Detection System rather than following their training, including but not limited to making eye contact with pedestrians and other operators
+ Is not designed to stop prior to impact when an object is moving toward or suddenly appears in the path of an In-Aisle Detection System equipped truck
+ Is not designed for outdoor use
+ May falsely trigger if aisles are not kept free of debris/product
+ May falsely trigger if floors are not properly maintained or are not flat
+ Increases the length and turning radius of the truck
+ If other vehicles in the same warehouse are not equipped in a consistent manner, it may cause confusion for operators
+ May not operate properly in environments with highly reflective objects
+ Will not operate properly in cold environments or in environments where trucks move between environments with disparate temperatures
+ May detect items in cross aisles or outside the VNA aisle resulting in truck slowdown while still within the aisle

MODELS

+ 5300, 5400, 5500, 5600, 9600, 9700

iW.FIELDSENSE:

The United States Department of Labor Occupational Safety and Health Administration (OSHA) imposes a duty on employers to train and supervise operators and pedestrians. When training, retraining, and supervising operators, reinforcement of proper operating practice is advised. This includes consideration of how lift trucks are used in the workplace.

The workplace requires operators and pedestrians to be aware of workplace conditions such as aisle configurations and intersections, and the proximity of trucks and pedestrians. The employer should implement appropriate workplace rules with regard to lift truck operation, as well as pedestrian behavior.

The iW.FieldSense system is intended as a training reinforcement tool. It may enhance the operator's awareness of other trucks and pedestrians in their environment. iW.FieldSense may inform the operator of truck or pedestrian presence before they are seen. It is not intended as a replacement for operator or pedestrian training, nor is it a substitute for either the operator's or pedestrian's attention to their surroundings, proximity to other objects and behavior. It is the sole responsibility of the operator, at all times and under all conditions, to remain vigilant and constantly maintain control of all aspects of the lift truck's operation. Each lift truck is equipped with an operator controlled horn as standard equipment. The horn serves as a device to warn other truck operators and pedestrians of the truck's presence. Accordingly, an operator is normally able to see other truck operators and pedestrians, warn them of their truck's presence and bring the truck to a stop an appropriate distance away.

The iW.FieldSense system uses a truck mounted Magnetic Field Generator (MFG), pedestrian carried Personal Notification Device (PND), and warehouse mounted devices to provide notifications and alerts. If iW.FieldSense devices are detected in a truck's in a truck's MFG's field, audio and visual alerts are sent to lift truck operators, indicating the presence of pedestrians and/or other lift trucks in their proximity. The pedestrian PND devices alert to indicate the presence of lift trucks in their proximity. These alerts are used as reminders to operators and pedestrians to follow their training. There is an additional truck mounted device, called the Cab Silencer, to prevent unintended alerts while a truck operator is actively operating or directly next to their truck. The Cab Silencer will also affect pedestrians in close proximity to the truck.

APPLICATION CONSIDERATIONS:

+ Intended to reinforce operator and/or pedestrian training of facility rules through audio and visual alerts.
+ iW.FieldSense fields may change shape and/or size if installed or driven near high intensity, non-LED strobe lights, high EMI signatures, specific RF signals, and/or metal structures. This may impact if or when alerts are given and at what proximity.
+ iW.FieldSense may need special mounting considerations in drive-in rack applications
+ Adjustment of MFG field size is critical to all applications. The customer is in the best position to evaluate their application and the appropriate size of the MFG field.
+ The iW.FieldSense system may not work as expected if the MFG field sizes are not set appropriately.
+ Each truck model will have a unique MFG field shape and size due to mounting and environmental variations.
+ The truck will not react to the iW.FieldSense alerts.
+ Activates by proximity to other objects that are equipped with iW.FieldSense.
+ Alerts when the operator drives their truck, or the pedestrian moves, into proximity of another Magnetic Field Generator or other specific iW.FieldSense warehouse devices.
+ Will not alert an operator or pedestrian if they are within a predefined Silent Zone with active iW.FieldSense warehouse devices installed (Cab Silencer or Room Silencer).
+ Not designed for outdoor use.

iW.FIELDSENSE (CONTINUED):

+ Habituation may decrease operator and/or pedestrian vigilance and attentiveness; operators or pedestrians may rely on iW.FieldSense rather than following their training, including but not limited to making eye contact with pedestrians and other operators.
+ If other vehicles or pedestrians in the same warehouse are not equipped in a consistent manner, it may cause confusion for operators and/or pedestrians.
+ Consider separating pedestrians from lift trucks where appropriate. In certain environments of use, however, there may be a high level of pedestrian traffic, some of whom may be unfamiliar with lift trucks and their operational characteristics. For this type of environment, Raymond offers the iW.FieldSense system.
+ iW.FieldSense will recognize operators who exit their truck as pedestrians once the exit the Cab Silencer area. If a pedestrian enters the Cab Silencer area, the operator and pedestrian may not receive an alert. Operators and pedestrians must follow their training at all times.
+ Pedestrians must not rely on the PND as the primary means to identify trucks or pedestrians in their proximity.
+ Be aware that a timing difference may exist when two lift truck's fields intersect. Depending on the direction of travel toward one another, one lift truck may sense the other lift truck first.

MODELS

+ 7200 / 7300, 7310 / 7500, 7520, 7530 / 7700, 7720, 7730
+ 5300 / 5400 / 5500 / 5600
+ 9600 / 9700
+ 4150 / 4250
+ 4460 / 4750 / 4760
+ 8510 / 8610

REAL-TIME LOCATION SYSTEM (iW.RTLS):

The United States Department of Labor Occupational Safety and Health Administration (OSHA) imposes a duty on employers to train and supervise operators and pedestrians. In the course of training, retraining, and supervising operators, reinforcement of proper operating practice may be advisable. This includes a consideration of the use of lift trucks in the workplace.

Today's workplace requires operators and pedestrians to be aware of workplace conditions such as aisle configurations and intersections, and the proximity of trucks and pedestrians. The employer should consider appropriate workplace rules with regard to speed limits and stopping, as well as pedestrian behavior. Additionally, the employer should also consider separating pedestrians from lift trucks if appropriate. In any facility, it is possible to have areas where lift truck or pedestrian traffic is undesirable. A method for keeping lift truck or pedestrian traffic outside of these areas is training.

RTLS is intended as a training reinforcement tool. It is not intended as a replacement for operator or pedestrian training. RTLS can be used to assist the employer in enforcing workplace rules and enhances an employer's ability to supervise its lift truck operators, pedestrians, and employees. RTLS is not a substitute for either the operator's or pedestrian's attention to their surroundings and judgment.

RTLS uses stationary anchors within the facility to determine the approximate location of truck tags mounted to lift trucks and/or pedestrian badges. Facility managers may define specific zones for a given lift truck(s) or pedestrian(s). RTLS is intended to notify lift truck operators, pedestrians, and supervisors that an operator has driven their lift truck or a pedestrian has moved out of an appropriate zone or into an inappropriate zone.

In certain configurations, when an operator driving a lift truck equipped with RTLS attempts to enter or leave a specified zone, the iWAREHOUSE® Evolution unit will display a message and an audible tone may sound. The lift truck will also slow or stop. This is the indicator to the operator of the zone violation and a reminder to follow their training. Similarly, pedestrian badges may flash and sound to indicate their zone violation.

Many variables may affect how pedestrian badges perform in a given application and how trucks react to zone violations in a given application. User defined zone locations and dimensions may vary from graphical representations. Environmental factors may impact the system's accuracy with regard to a lift truck's or pedestrian's location at a given place at a given time. Facility managers must make certain that zones are defined in accordance with their application specifications.

Lift truck and pedestrian activities can be monitored by RTLS. The system has the ability to record and report the number of zone violations. This allows a proactive supervisor to monitor operator and pedestrian zone-related practices, thereby giving the supervisor the information necessary to take appropriate corrective action.

APPLICATION CONSIDERATIONS:

+ RTLS tracks the relative path that an operator drives their lift truck or a pedestrian moves through a facility. RTLS does not activate by proximity to other objects. RTLS activates when the operator drives their truck or the pedestrian moves into or out of a previously defined zone.
+ iWAREHOUSE® Evolution is a prerequisite feature.
+ Not designed for outdoor use
+ Tracks the RTLS truck tag's approximate location
+ Tracks the RTLS pedestrian badge's approximate location
+ Temporary interruption of communication between the RTLS truck tag or pedestrian badge and anchors will result in a momentary interruption in determining their location, and may limit functionality.
+ Reinforces operator and/or pedestrian training of facility rules
+ The truck will not detect and react to other lift trucks.
+ The truck will not detect and react to pedestrians.

REAL-TIME LOCATION SYSTEM (iW.RTLS) (CONTINUED):

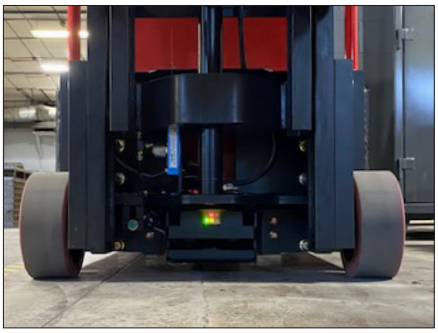
APPLICATION CONSIDERATIONS (CONTINUED):

+ Cannot be used for Social Distancing training
+ Habituation may decrease operator and/or pedestrian vigilance and attentiveness; operators or pedestrians may rely on RTLS rather than following their training. Operators cannot wait for the system to activate.
+ Stopping distances vary with types and configurations of trucks; facility managers must consider stopping distances when determining zone dimensions and locations.
+ If other vehicles in the same warehouse are not equipped in a consistent manner, it may cause confusion for operators and/or pedestrians.
+ Lift truck tags and pedestrian badges will not react to zone violations during power outages, system server failures, or any other disruption to the RTLS infrastructure.
+ It is possible to have areas where lift truck tags or pedestrian badges may not have a strong connection to the system. These areas may cause delays in reporting positions of tags. Delays or interruptions may therefore be caused in transmitting activity relative to a specific truck or pedestrian. When communication to the system is lost, this may also result in the truck coming to a stop.
+ Actual user-defined zone locations and dimensions may vary from graphical representations.
+ The RTLS-determined locations of lift trucks may differ from actual locations, and therefore the lift truck may not respond in the same manner every time. Do not rely on RTLS to initiate truck reactions for you.

MODELS

+ 4150, 4250, 5300, 5400, 5500, 5600, 7500, 7520, 7700, 7720, 8510, 8610, 8910, 9600, 9700

REVERSE OBSTRUCTION SENSOR:



The United States Department of Labor Occupational Safety and Health Administration (OSHA) and the ANSI / ITSDF B56.5 Safety Standard imposes a duty on employers to train and supervise operators and pedestrians in environments where Automated Lift Trucks (ALTs) operate. In the course of training, retraining, and supervising operators, reinforcement of proper operating practices may be advisable.

Each automated lift truck is equipped with ANSI/ITSDF B56.5 Safety Standard compliant audible and visual warning devices. Accordingly, a pedestrian is normally able to see and hear the automated lift truck, warning them of the truck's presence and stay out of its path.

The Reverse Obstruction Sensor feature is a training reinforcement tool to provide notice regarding an automated lift truck's proximity to other objects that is consistent with customer facility rules in the warehouse environment. It is not a substitute for pedestrian training, or the requirement that pedestrians always be aware of their proximity to other objects at all times, and follow their training.

Raymond automated lift trucks are designed to travel primarily in the forks trailing direction. Each automated lift truck is equipped with an ANSI/ITSDF B56.5 Safety Standard compliant object detection system as standard equipment. The user is required to mark restricted areas as defined in the ANSI/ITSDF B56.5 Safety Standard. An area which cannot be protected by object detection devices is considered a restricted area.

Areas where ALTs are traveling in the forks leading direction must be designated as restricted areas. In these areas, the travel speed can be no greater than 0.3m/s.

The Reverse Obstruction Sensor feature provides additional sensing in the forks leading direction, allowing the automated lift truck to detect obstructions in its intended path under certain conditions. If an object is detected, the automated lift truck equipped with the Reverse Obstruction Sensor will illuminate a light and will decelerate to a stop. The Reverse Obstruction Sensor does not allow the automated lift truck to increase its speed in the forks leading direction and the area should still be consider restricted.

APPLICATION CONSIDERATIONS:

+ Detect objects that are located along the forks leading direction of an automated lift truck that is equipped with this feature. The sensing field is not designed to detect all objects in the forks leading direction, therefore the restricted area requirements of ANSI/ITSDF B56.5 Safety Standard must be met
+ The Reverse Obstruction Sensor will be temporarily disabled prior to load engagement or disengagement to prevent false triggers
+ The fork tip sensors only detect what is in the immediate extended direction of the length of the fork, approx. 12" away
+ Habituation may decrease pedestrian vigilance and attentiveness; pedestrians may rely on the Reverse Obstruction Sensor system rather than following their training, including but not limited to staying away from restricted areas. Automated lift trucks traveling in the forks leading direction will continue to move at 0.3m/s or less regardless if equipped with this feature
+ Pedestrians should be directed away from areas where the automated lift truck is operated that are designated restricted areas even when equipped with Reverse Obstruction Sensor
+ Is not designed to stop prior to impact when an object is moving toward or suddenly appears in the automated lift truck's path
+ Fork travel height may require higher dimension to maintain a clear view for the Reverse Obstruction Sensor
+ Functionality may be reduced or limited in environments with intense ambient light or highly reflective objects
+ Is not designed for outdoor use
+ May trigger more than desired if aisles are not kept free of debris/product
+ May falsely trigger if floors are not properly maintained or are not flat
+ May falsely trigger when pallets are irregular, of poor quality, or have material hanging below the pallet deck
+ May increase the effective length and turning length and turning radius of the automated lift truck based on the sensing field size
+ If other lift trucks in the same warehouse are not equipped in a consistent manner, it may cause confusion for operators and pedestrians
+ Requires high quality pallets or unit load carriers

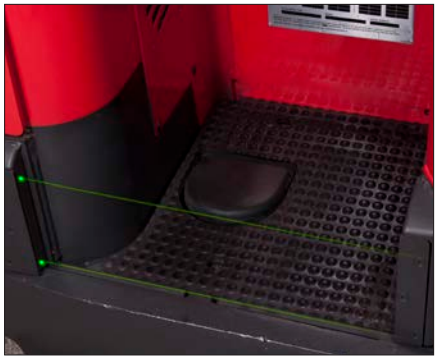
MODELS

+ 3010, 3030

OPERATOR COMPARTMENT SENSOR SYSTEM:

The United States Department of Labor Occupational Safety and Health Administration (OSHA) imposes a duty on employers to train and supervise operators. In the course of training, retraining, and supervising operators, reinforcement of proper operational practice may be advisable.

Operator Compartment Sensor Systems reinforce the need for the operator to assume and maintain a proper operator position. These systems do not impair the ergonomic advantage built into the truck or tow tractor and will allow the operator to assume a range of proper operating positions.



STAND-UP END CONTROLLED:

This system uses multiple light beam sensors embedded in rear operator compartment housings. The sensors span the entry to the compartment. When the sensors are blocked or the beams are not seen or emitted, a tone sounds, a message scrolls on the operator display, and the truck will decelerate to a stop if traveling. If the truck is stationary, it will not allow travel until the object blocking the sensor is removed or the beam is seen or emitted. The activity of the sensors is monitored by the vehicle control system. A truck equipped with this system has the ability to record the number of occurrences of the beam being broken. This will allow a proactive supervisor to monitor operator practices, thereby giving the supervisor the information necessary to take appropriate corrective action.

APPLICATION CONSIDERATIONS:

+ Increases turning radius of truck
+ Direct sunlight can adversely affect operation
+ May create operational inefficiencies, especially in cold storage situations
+ Bulky freezer gear may inadvertently trigger device
+ Frost can build up on sensors in certain environmental conditions
+ Freezer curtains can trigger device

MODELS

+ EASi Pacer™, EASi Reach/Deep-Reach/Straddle, 4100, 4150, 4200, 4250, 7000 Series, 8900, 8910

PALLET TRUCK/TOW TRACTOR:

This system uses a sensor in the floor of the truck/tow tractor compartment and the activity of the sensor is monitored by the vehicle control system. Truck performance can be altered based on the state of the sensor. Different configurable settings are available to the customer depending on the material handling tasks to be performed. For example, the Model 8500 and 8510 may be configured so that travel will always be restricted if the operator has not assumed the proper riding operating position or alternatively configured so that the operator may assume either the orderpicking position outside of the truck or the riding position. The Model 8600 and 8610 may be equipped with a sensor to ensure that the operator has assumed the designated operating position.

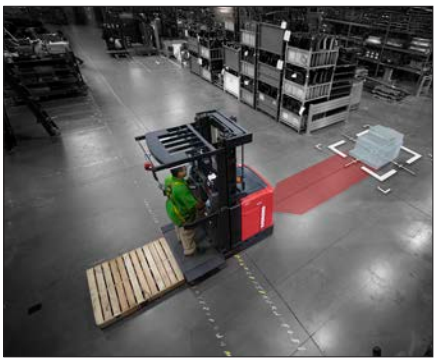
APPLICATION CONSIDERATIONS:

+ May create operational inefficiencies
+ May impair order picking on some models
+ May limit performance or functions

MODELS

+ 8500, 8510, 8530, 8600, 8610, 8720, 8810

iW.OBJECTSENSE



The United States Department of Labor Occupational Safety and Health Administration (OSHA) imposes a duty on employers to train and supervise operators. In the course of training, retraining, and supervising operators, reinforcement of proper operating practices may be advisable.

Raymond lift trucks and tow tractors are designed to provide excellent visibility when an operator is traveling in either the forks-first (coupler-first) or tractor-first direction. Accordingly, an operator is normally able to see objects in their path of travel and bring the lift truck or tow tractor to a stop at an appropriate distance away.

The iWAREHOUSE ObjectSense™ Detection and Notification System (iW.ObjectSense) is intended as a training reinforcement tool to provide notice regarding a lift truck or tow tractor's proximity to certain objects that is consistent with customer facility rules in the warehouse environment. It is not intended as a replacement for the training requirements that an operator always look in the direction of travel, be aware of their proximity to other objects, maintain a safe speed and distance from objects, and follow their operator training at all times.

The Safety On The Move® program is a training program that helps you satisfy your training obligations under OSHA regulations for your lift truck operators. It is available from your authorized Raymond Solutions and Support Center.

The iW.ObjectSense system uses a scanner mounted on the tractor end of the lift truck or tow tractor to sense objects when traveling in the tractor-first direction. On certain models, an optional forks-first scanner is available to sense objects when traveling in the forks-first direction. The system can only sense certain objects along the center of the approximate travel path in the direction of travel. Models equipped with a tractor-first system only cannot sense while traveling in the forks-first direction.

Within customer adjustable parameters, if an object is sensed during travel, the system provides notice in the form of an audible tone and/or visual feedback. The operator should plug or apply the brake to slow the lift truck or tow tractor if notified by the system. The system may also impose additional action in the form of speed limiting.

APPLICATION CONSIDERATIONS:

+ Is only available on certain lift trucks and tow tractors equipped with the iWAREHOUSE Global Telematics System™ (iW.GTS) server.
+ Senses objects that are located along the center of the lift truck or tow tractor's approximate travel path.
+ Only senses the part of an object that is in the scanner's horizontal plane. Note that the scanner cannot always detect all objects. This is affected by the speed and steer angle of the lift truck or tow tractor, as well as the size, location, and reflectivity of an object.
+ The scanner will not sense objects that are above or below the sensing plane of the scanner.
+ The scanner may not sense highly reflective or shiny objects.
+ Habituation may decrease operator and pedestrian vigilance and attentiveness. Operators may rely on the system rather than following their training with regard to truck operation.
+ May not notify the operator or slow the lift truck or tow tractor prior to impact if an object suddenly appears along the center of the lift truck or tow tractor's approximate travel path, if the object is moving towards the lift truck or tow tractor, or when the lift truck or tow tractor is turning
+ Is not designed for outdoor use
+ Cannot be used to reinforce proper operator position. Operators must assume and maintain a proper operator position at all times.
+ Does not operate properly in cold environments or in applications where lift trucks or tow tractors move between environments with disparate temperatures.
+ May increase lift truck or tow tractor head length and/or turning radius.
+ May trigger if aisles are not kept free of debris or product.
+ May trigger if floors are not properly maintained or are not flat.
+ May trigger if driving close to objects while steering.

iW.OBJECTSENSE (CONTINUED)

+ Forks-first iW.ObjectSense option requires the operator to raise the platform (Available only on model 9600/9700).
+ May trigger due to items in cross aisles or outside the aisle while the lift truck or tow tractor is still within an aisle.
+ May trigger due to strip curtains.
+ System may cause confusion for operators and pedestrians if other lift trucks and tow tractors in the same warehouse are not equipped in a consistent manner.
+ May increase aisle width requirements and/or reduce operating clearances.
+ May create operational inefficiencies.

MODELS

+ 4150, 4250, 5300, 5400, 5500, 5600, 7200, 7300, 7500, 7520, 7530, 7700, 7720, 7730, 8510 (w/ PowerSteer), 8610 (w/ PowerSteer), 8910, 9600, 9700


AA
25
A
3
RAYMOND

RUN BETTER.
MANAGE SMARTER.®

At Raymond, our aim is to deliver the utmost quality and to work for continuous improvement every day, in every aspect of our business. We are proud of what we build. We are proud of the level of service we provide to keep our customers' business up and running. We take pride in our commitment to our customers through our end-to-end approach in helping them find smarter, more efficient, and more effective solutions.

We value the trust that Raymond has earned through decades of proven performance and hands-on innovation. Since the patenting of the first hand-pallet truck to the invention of the reach truck to our pioneering work in narrow aisle operations and beyond, Raymond has led the way in providing customers with the tools and expertise to improve their business.

IF YOU'RE LOOKING FOR A PARTNER WITH THE TOOLS AND EXPERIENCE TO HELP YOU RUN BETTER AND MANAGE SMARTER, LET'S TALK.

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