Reach Trucks
Features, Benefits Comparison

Hyster N30XMDR3

Raymond R30TT

Crown RR5020-45

August 2001

Operator Position

N30XMDR3 Flex Stance

Nominal

Stacking

Driving

FLEX STANCE

The **Hyster** flex stance orients the steering and control handle to a nominal 45 degree position. This allows the operator to face forward while picking up and depositing loads, as well as rotate to face the direction of travel either driving forks first or chassis first.

Hyster's flex stance offers optimal ergonomics when retrieving loads at higher shelf levels, as well as full visibility in either travel direction. The operator can move within the compartment and change positions throughout the day. The flex stance has all the advantages of both the forward / aft stance or the side stance, with none of their inherent disadvantages.

Operator Position

Raymond R30TT Stance

Nominal

Driving

Aft Driving

Raymond offers forward / aft stance as standard and side stance as a no charge option. Forward / aft is ergonomically acceptable for high level stacking, but is not ergonomically correct for chassis first travel. Raymond's suggestion to turn around and face the direction of travel changes the operator's controls and steering orientation. Steering is then also reversed. The full side stance orientation is not ergonomically correct for high level stacking, but offers better visibility when traveling chassis first.

The Caterpillar / Raymond Reach Truck offers side stance only.

Operator Position

Crown RR5020-45

Side Stance

Nominal

Stacking

Driving

Crown offers side stance only. Twisting the neck when stacking to high lift heights can be uncomfortable (above the 4th level). When the operator is locked in the side facing position, visibility behind the operator is poor if exiting aisles into busy cross traffic**.**

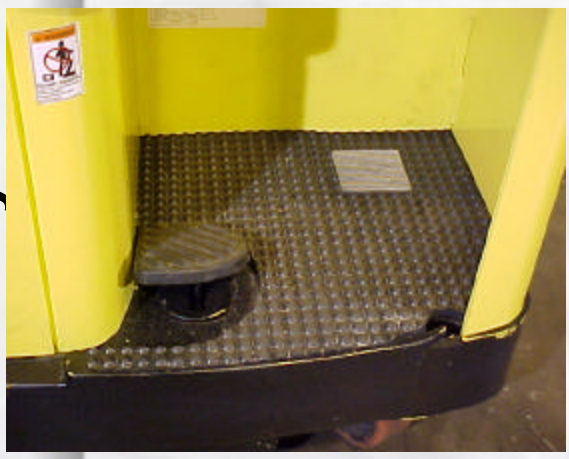
Crown's Operator Manual, page 7 states "take advantage of stop time. Get off the truck and flex your arms and legs. Staying alert will help you be a better and safer driver."

Having to get off the truck to flex the body is unproductive. Crown admits their locked side stance is uncomfortable and therefore unproductive. The Hyster Reach Truck offers Flex Stance as standard.

Operator Position

Operator Sensing Switch

Hyster



The **Hyster** sensing switch ensures the operator has both feet within the compartment during startup.

Hyster allows the operator to shift the right foot to change stance positions throughout the shift.

Hyster uses a 5/8“ thick floormat

Raymond

Raymond does not offer a sensing switch. The right foot can be left outside the chassis without activating the brake during either truck startup or operation.

Raymond uses a 3/8" floorboard.

Crown

Crown uses a large foot pedal as a right foot sensing plate.The right foot cannot be removed from the pedal or the brake will be activated. This locks the operator’s feet in the same position throughout the day. Crown's angled and sprung floorboard locks the knees.

Operator Compartment

Step height

HYSTER

The advantage of a low step height is easier on and off. One advantage of a higher step height is better visibility and better foot protection.

Hyster has a 13" step height. The articulating MDU offers good stability when cornering as well as improved traction and braking.

RAYMOND

Raymond has a 9" step height. It uses a sprung caster system and a fixed drive unit, leading to possibly reduced traction and uneven drive tire and caster wheel wear.

CROWN

Crown has a 10 1/2" step height. Like Raymond, the sprung caster system allows uneven tire wear and less traction on corners.

Operator Compartment

Foot Space

The larger foot room allows the operator to change positions within the compartment throughout the shift improving productivity.

HYSTER

Hyster - 40" wide chassis. 19.5" wide floorboard, 332 sq. in. foot room. The compartment is 17” deep for forward stance operation.

(The Grocery Reach has a 44" wide chassis with a 22.5” wide floorboard, and 382 sq. in. foot room).

RAYMOND

Raymond -40.5" wide chassis. 15.5" wide floorboard, 260 sq. in. foot room. Raymond's compartment tapers upwards to provide good hip room. Hyster has 22% more floor space than Raymond. Raymond is fwd / aft stance – their compartment is 17” deep.

CROWN

Crown - 42" wide chassis. 17" wide floorboard, 276 sq. in. foot room (16.2” deep).

Hyster has 20% more floor space than Crown.

Operator Compartment

Multi-function handle / Palm Rest / Actuation

HYSTER

Hyster – The palm rest supports the operator's hand, upper arm, and shoulder, reducing operator fatigue. The handle uses an "X / Y" axis actuation, with lift /lower and travel, as well as one other hydraulic function available simultaneously. There are two speed reach and retract buttons. The functions conform to ANSI B56 recommendations on "intuitive mapping". Hyster uses hall effect sensors to replace potentiometers. The handle can be rotated laterally for operator preference.

RAYMOND

Raymond

Does not conform to ANSI B56 recommendations (lift / lower is left to right movement) Raymond uses potentiometers. The Raymond has neither an armrest or palm rest for operator support.

CROWN

Crown

Conforms to ANSI B56 but is not as intuitive as the Hyster handle. Crown uses potentiometers. Crown has a non-adjustable armrest.

Operator Compartment

Operator Display

HYSTER

The **Hyster** operator display indicates BDI, Hour meter, function icons, and fault and service warning messages as well as operator selectable travel and acceleration speeds. The Hyster reach truck display is mast mounted at eye level. The operator does not have to look up or down.

RAYMOND

The **Raymond** display is chassis mounted. The operator has to look down.

CROWN

The **Crown** display is chassis mounted, the operator has to look down.

Operator Compartment

Lumbar Support / Left Rear Protection Post

HYSTER

The **Hyster** lumbar support is a padded backrest for the resting position, and offers support to the body when starting, stopping, cornering, and traveling.

The left rear post offers protection from second level rack beam intrusion into the operator compartment.

RAYMOND

Raymond does not offer a lumbar support as standard. Raymond does not offer a protection post as standard. It is a $500.00 option. Raymond does offer a high lumbar support option on side-stance models only.

CROWN

Crown offers a padded lumbar support but it is not protected by the chassis, and is easily damaged. The rounded shape locks the operator in one position. Crown does not offer a protection post as standard. It is a $355.00 option.

Frame Design & Durability

Base Arm Weldment/ Trunnion Mast

HYSTER

Hyster welds the base arms to the chassis providing added strength to the base arms. With the mast removed, a "rolling chassis“ makes shipping and installation easier, improves serviceability, allows interchangeability of masts, allows easy upgrading to taller masts and flexibility in rental fleets. Hyster uses a trunnion mount mast design.

RAYMOND

Raymond welds the mast to the base arms – higher installation and service costs and less strength.

CROWN

Crown welds the mast to the base arms – higher installation and service costs and less strength.

Frame Design & Durability

Vista™ Mast

HYSTER

The **Hyster** Vista™ mast design protects the dual lift cylinders behind the mast channels. This improves visibility, allows easier servicing of the cylinders, and offers protection for the cylinders. The XMR3 upgrade also offers a smaller diameter free lift cylinder.

RAYMOND

Raymond does not use a vista style mast, but 4 clustered center cylinders. Higher service costs. Their “clear view” mast provides a clear view of their center cylinders, and only 7.5" of visibility on either side of clustered cylinders.

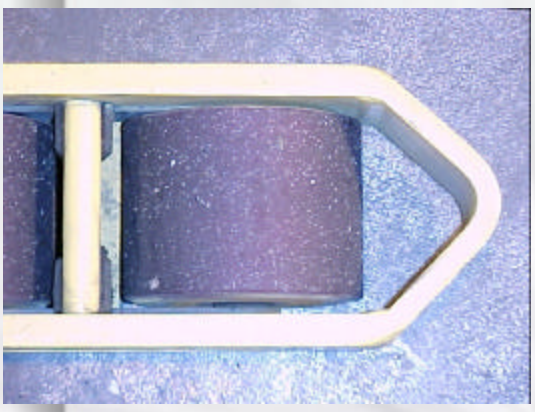
CROWN

Crown uses a high visibility style mast, but the cylinders and chains are not completely protected by the mast channels.

Frame Design & Durability

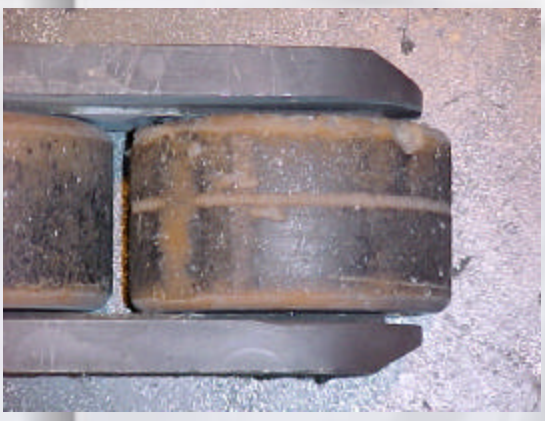
Base Arm Toe Caps

HYSTER



Hyster encloses the toe caps as standard for added protection. There are only 10 parts in the standard Hyster load wheel design. Tapered tips and bolt on tips are available through SPED.

RAYMOND



Raymond has exposed load wheels, making load wheels susceptible to impact damage. 21 parts in their load wheel design. "Straddle" base arms have enclosed tapered tips as a $135. - $270. option.

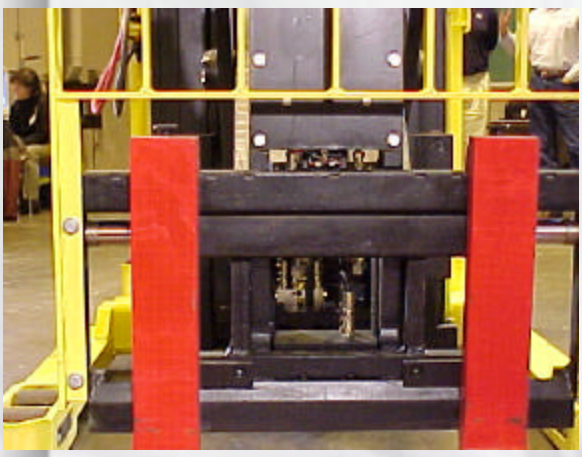
CROWN

Crown has exposed load wheels, making them susceptible to impact damage. 19 parts in their load wheel design. Enclosed tapered tips are a $140. option.

Carriage Design & Pantograph

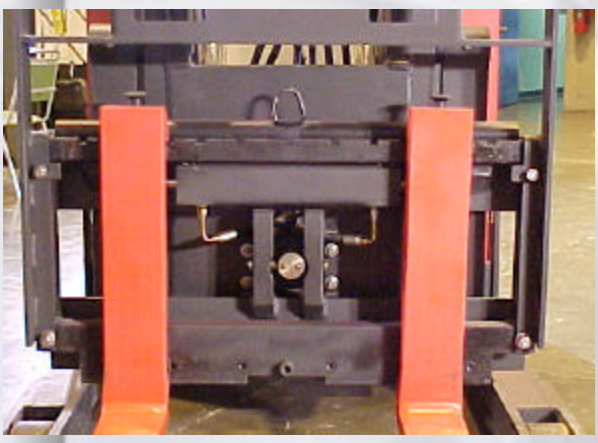
Hook Carriage / Sideshift

HYSTER



The new **Hyster** hook-type carriage is manufactured by Bolzoni. Hyster has 7" sideshift as standard, which is reduced to 4" with a base arm ID of less than 38“

RAYMOND

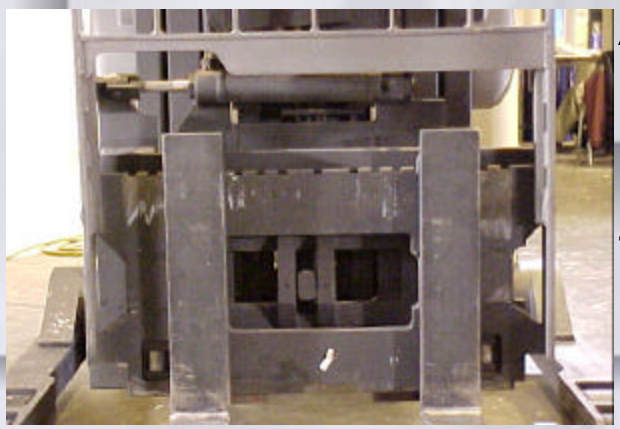


Raymond - A hook carriage is standard, a pin carriage is a $485. option.

4" sideshift is standard.

8" sideshift is a n/c option.

CROWN



Crown

A hook carriage is standard, a pin carriage is not available.

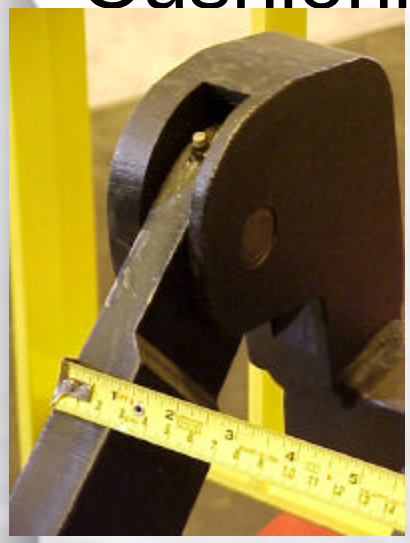
4" sideshift is standard

8" sideshift is a n/c option.

Carriage Design & Pantograph

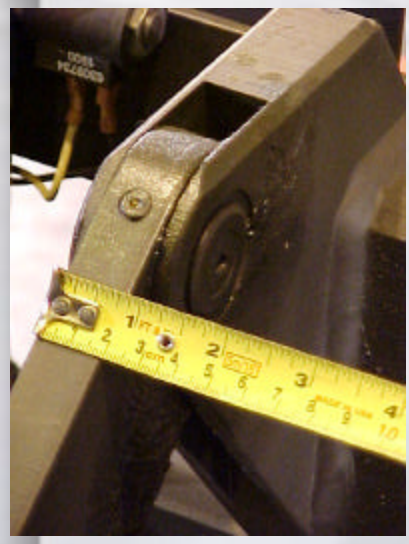
Cushioning and Arm Durability

HYSTER



Hyster's pantograph is cushioned at both ends of the reach and retract strokes. Hyster has had 1" thick pantograph arms since 1993. Uses standard grease fittings.

RAYMOND



Raymond's pantograph is cushioned on the reach, but not the retract stroke. Raymond uses 3/4" thick pantograph arms. Uses needle type grease fittings, with a special grease gun required

CROWN

Crown's pantograph is 1” thick and not cushioned at either the reach nor retract stroke. The load is “slammed” in or out. Crown's 5000 series carriage has been strengthened over previous models.

Carriage Design & Pantograph

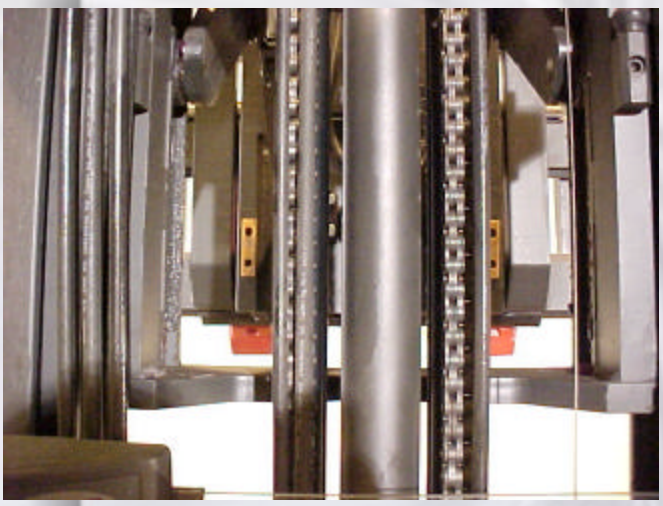
Visibility Through Carriage

HYSTER

A clean pantograph design with good visibility reduces product damage and improves productivity.

Hyster's new Bolzoni hook carriage offers far superior visibility through the carriage for second level stacking.

RAYMOND



Raymond

At second level visibility is almost zero, far less than Hyster.

CROWN

Crown

Almost zero visibility through carriage. The operator has to look around the mast for visibility, twisting the upper body outside the chassis.

Carriage Design & Pantograph

Load Rollers

HYSTER

Hyster – Large 3" Diameter rollers, adds to strength and rigidity.

RAYMOND

Raymond - 2 3/4" Diameter rollers.

CROWN

Crown - 2 5/8" Diameter rollers.

Component Access & Serviceability

Component Access

HYSTER

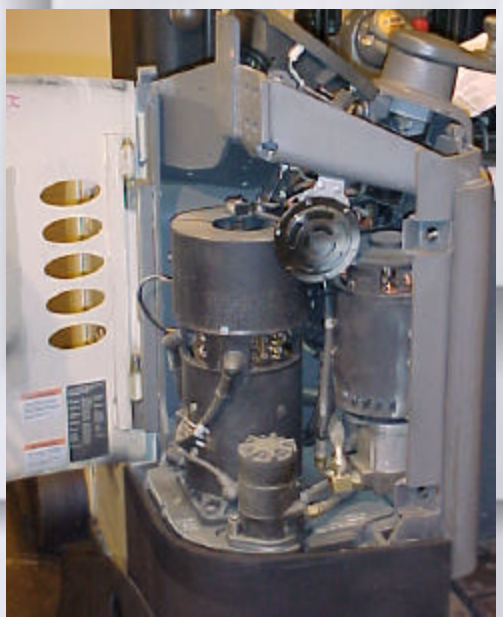
Hyster provides easy access to the motors compartment, which improves serviceability, increases uptime and helps reduce maintenance costs. The spacious compartment allows the motors to run cooler. Brushes are easily accessed.

RAYMOND

Raymond components are cramped. Rotating drive motor allows good access to brushes, but flexing of motor cables.

There is excessive heat build up due to all three motors being located in the same compartment.

CROWN

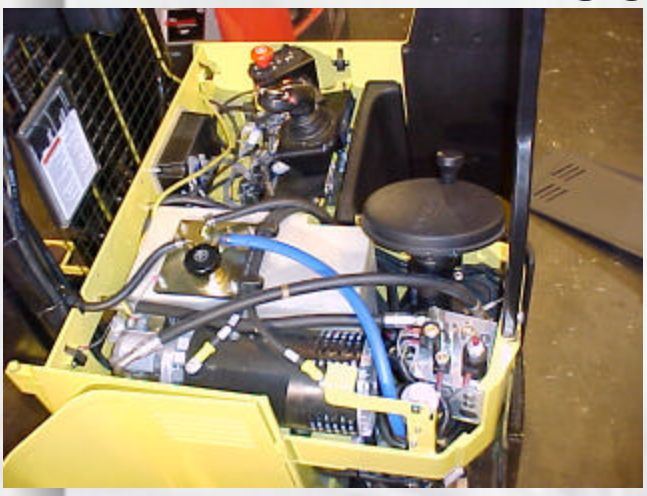


Crown's compartment is extremely cramped and congested. A map is provided and is needed to figure out where all the components are. The dual hoist motor option results in an even more congested compartment as well as excessive heat build up.

Component Access & Serviceability

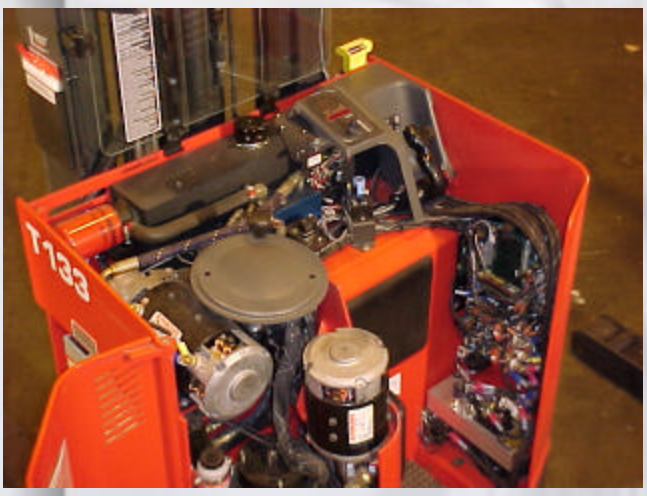
Electrical Component Access

HYSTER



Hyster's electrical components are easily accessed by snapping off the top cover. There is plenty of room for servicing and a cool running operation.

RAYMOND



Raymond's components are very cramped and are split into two areas. The area in the operator compartment reduces the floorboard to 260 sq. in. (vs. Hyster's 332 sq. in.).

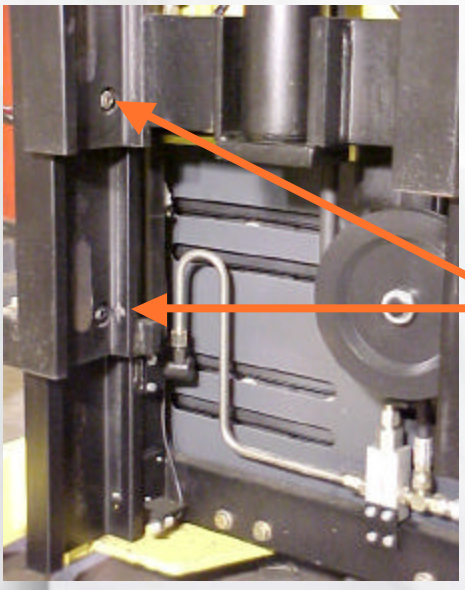
CROWN

Crown's top electrical compartment is congested and crowded. A map is required. Some components are located behind the carriage with difficult access. Other components are in the operator compartment area. There is potential for excessive heat build up.

Component Access & Serviceability

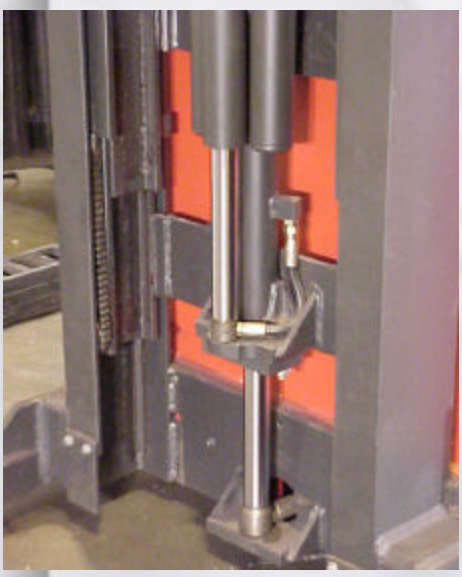
Lift Cylinders
Adjustable Wear Plugs

HYSTER



Hyster uses adjustable wear plugs, which allows very simple periodic mast adjustment, which in turn, reduces mast sway. No exposed center cylinder.

RAYMOND



Raymond

No adjustable wear plugs for mast adjustment. The exposed center cylinders can lead to potential damage when the base arms straddle a pallet (with a 42” + ID).

CROWN

Crown

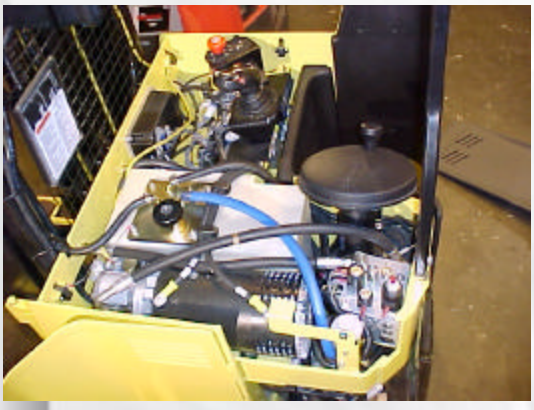
No adjustable wear plugs for mast adjustment.

The new mast design now offers no exposed center cylinders. Lift cylinder access for service is VERY difficult. Aesthetics compromise serviceability.

Component Access & Serviceability

Hydraulic Tank Access

HYSTER



Hyster offers easy access to the dipstick for daily checks and easy access to the spin-on filter.

RAYMOND

Raymond's filter is in the system compartment, with a potential for contamination.

CROWN

Crown has dual hydraulic tanks and a filter mounted underneath covers on the outside of the mast channels. 30 minutes to access and fill tanks. There are hydraulic hoses routed under the battery. A hydraulic fluid check port is located inside the battery compartment. Aesthetics compromise serviceability!

REACH TRUCK DEMONSTRATION GUIDELINES

PREPARATION 7/32" ALLEN WRENCH, SPARE KEY, TAPE MEASURE, POINTER, FLASHLIGHT, BROCHURES, DATA SHEETS, PRODUCT MANUAL **DRIVE THE TRUCK BEFOREHAND** LOOSEN BOLTS TO HAND TIGHT, CHECK BATTERY CHARGE CHECK BATTERY MOVEMENT

PRE-DEMO KNOW YOUR COMPETITION, DISCUSS APPLICATION, DISCUSS WHAT YOU WANT TO ACCOMPLISH, KNOW THE PEOPLE AND POSITIONS YOU ARE DEMONSTRATING TO

DEMONSTRATION POINTS TO COVER - USE A LOGICAL FLOW THROUGHOUT THE DEMO

FRONT END AND SIDE OF TRUCK

HOOK FORKS _____
CARRIAGE TILT _____
1" THICK PANTOGRAPH ARMS _____
ZINC ALLOY THRUST WASHER _____
MAST ID - STRENGTH _____
CUSHIONED STROKE _____
NESTED I BEAM CHANNELS _____
TRUNION MOUNTED MAST _____
DUAL CYLINDERS _____
SIDE THRUST WEAR PLUGS _____
RIGID BASE ARMS _____
WELDED TOE CAPS _____
LOAD WHEEL SERVICING _____
BATTERY CABLE GUARD _____
2 1/2" DIA. BATTERY ROLLERS _____
EASY BATTERY REMOVAL _____
ELECTRICAL DISCONNECT _____
SIDESHIFT 7" TOTAL _____

REAR OF CHASSIS

REAR GUARD _____
LUMBAR SUPPORT/PROTECTION _____
OH GUARD HEIGHT _____
13" STEP HEIGHT/ VISIBILITY _____
EASY ON / OFF BRAKE _____
PARKING BRAKE / PLUGGING _____
CUSHIONED FLOOR MAT _____
SENSING SWITCH _____
1/2" STEEL BUMPER _____
OPERATOR PADDING _____

GENERAL DISCUSSION POINTS

EASE OF MAINTENANCE _____
ISO PLANTS _____
UL APPROVAL "E" OR "EE" _____
DISCUSSION OF OPTIONS _____

MOTORS COMPARTMENT

EASE OF ACCESS _____
COMPARTMENT OPENNESS _____
MOTORS BRUSH ACCESS _____
CLASS H, FAN COOLED _____
CHASSIS VENTING _____
NON ROTATING DRIVE _____
DRUM BRAKE ACCESS _____
HFK TRANSMISSION _____
DRIVE TIRE REMOVAL _____
ARTICULATING MDU _____
ARTICULATING STOPS _____
ARTICULATING CASTER _____
HYDROSTATIC STEERING _____
STEERING ADJUSTMENT _____
PRIORITY FLOW TO STEER _____
SPUN HYDRAULIC TANK _____
SPIN ON FILTER _____
DIP STICK _____
BRAKE FLUID RESERVOIR _____
SEM CURTIS TRANSISTOR _____
MIB ADJUSTABILITY _____

OPERATOR AREA

OPERATOR FLEX STANCE _____
VISTA MAST _____
MESH SCREEN _____
DESK TOP COMPARTMENT _____
BDI W/ LIFT INTERRUPT _____
SELECTABLE HOUR METER _____
PROGRAMMABLE TRAVEL SPEEDS ____
MIB STATUS LED'S _____
FAULT CODES _____
PROGRAM SPEEDS THROUGH MIB ____
HANDLE PALM REST _____
2 SPEED REACH/RETRACT _____

GENERAL DEMONSTRATION TECHNIQUES

KNOW THE ROLES OF YOUR CUSTOMERS - FOCUS ON THEIR NEEDS
RELATE THE FEATURE / BENEFIT TO THE **ADVANTAGE** TO THEM
DO NOT USE HYSTER NOMENCLATURE (ie MIB, MDU)
INVOLVE THE CUSTOMER IN THE DEMO (ie OPERATE THE TRUCK)
OBTAIN AGREEMENT ON APPLICABLE FEATURES
ASK FOR THE NEXT STEP IN THE PROCESS
BE CONFIDENT AND ANIMATED - MAINTAIN CONTROL OF THE DEMONSTRATION