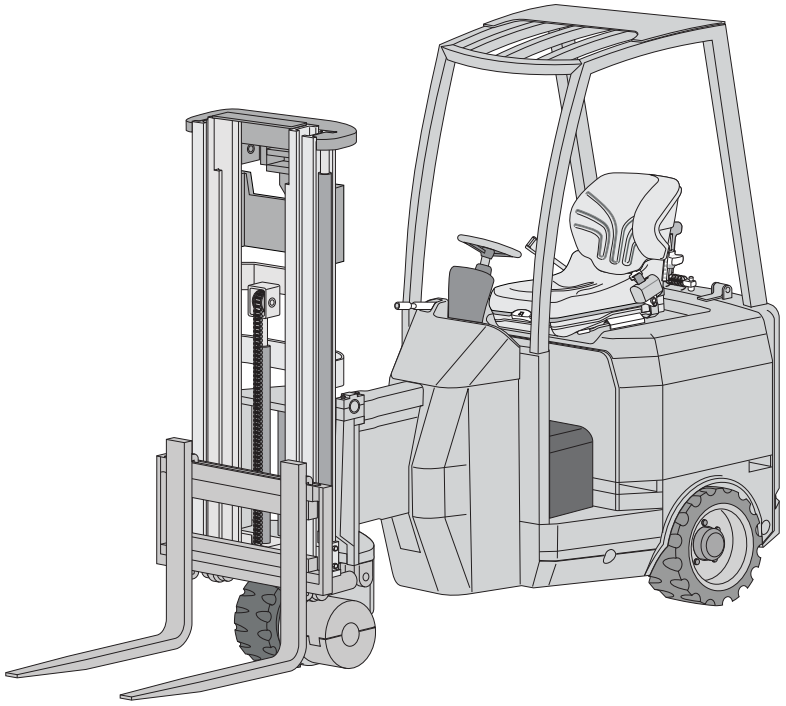
Bendi

ELECTRIC NARROW AISLE FORKLIFT

OPERATOR'S MANUAL

BENDI B3/25



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MATERIAL
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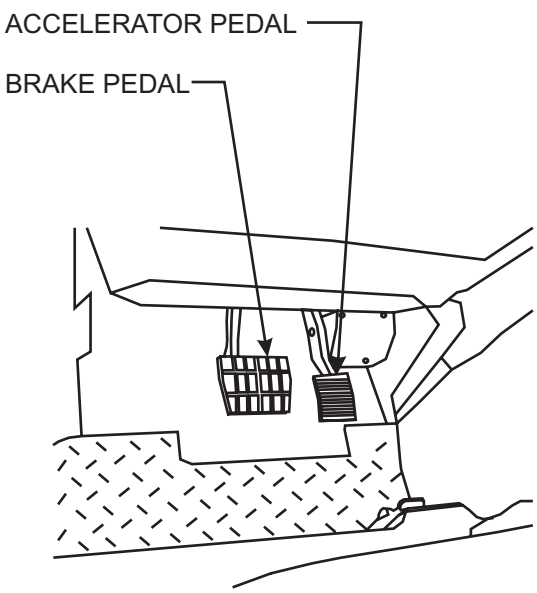
Terminology Used in Manual

Whenever front and rear, right and left are mentioned throughout this manual, it is assumed that you are standing behind the vehicle looking toward the forks.

Illustrations Used in Manual

This manual makes use of many illustrations to help you locate components on your Bendi forklift and follow the procedures.

You will note that each illustration has an identifying Figure number below the illustration frame (See Figure S-1).



b3 pedals

Figure S-1 Drawing Example

Battery Care

Features

Bendi 3 Wheel trucks include a heavy gauge battery box and top compartment cover/seat base to secure the battery in the box (See Figure S-7). The battery connector is found below the cover, on top of the battery.

The top compartment cover includes a latch to lock the battery box when the battery is in place (See Figure S-8 . The top compartment cover also latches to the overhead guard when maintenance is required on the battery or when the battery needs to be replaced (See Figure S-7).

The top compartment cover must be lowered/closed and securely locked in place whenever the battery is installed.

Care

The truck battery contains concentrated sulfuric acid which can cause severe chemical burns. When the battery is charging, it releases hydrogen, a colorless, odorless and highly explosive gas which can be ignited by a spark. Eliminate all sparks or flames from the charging area.

Shorting battery terminals can release enormous amounts of energy, causing sparks or flame, or heating nearby components to dangerous temperatures.

The battery is very heavy, and if the top compartment cover is not latched in place after maintenance, the battery box could slide causing electrical shorts or spilling acid - or it could cause the truck to tip over.

The battery is also used as a counterweight. A different size or weight battery could cause the truck to become unstable and tip. Use a battery that meets the weight and size specifications shown on the identification (capacity) plate in the operator's cab.

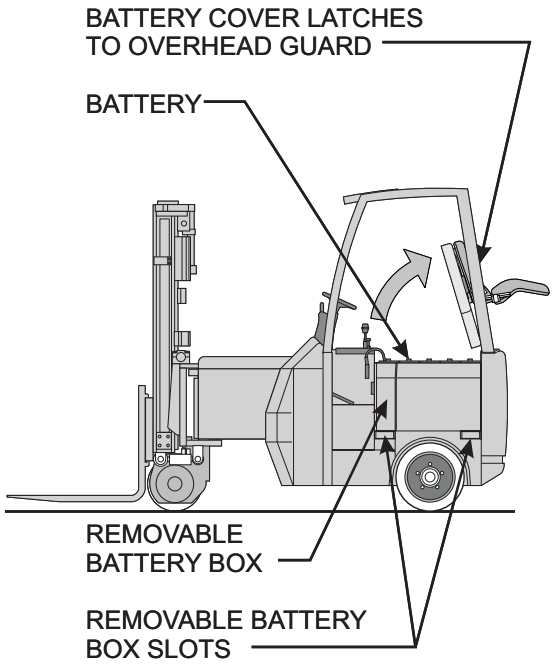


Figure S-7 Battery Compartment

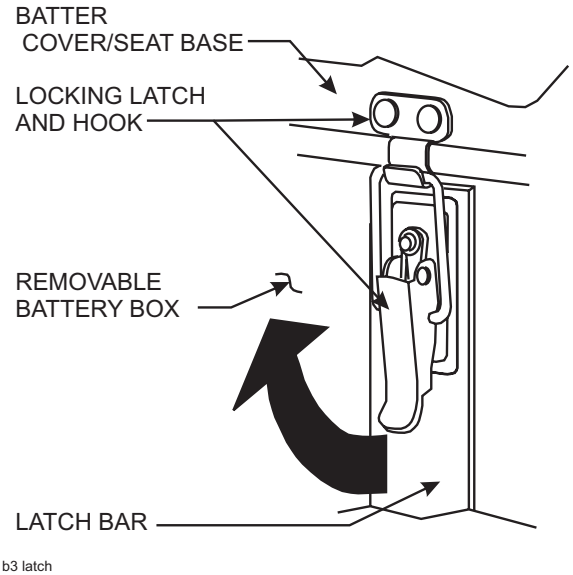


Figure S-8 Battery Box Latch

Operator's Cab

Driver Controls

Driving controls for the Bendi 3 Wheel truck include a steering wheel, horn button, a forward and reverse direction control lever, foot brake pedal, accelerator pedal for speed control, hand-actuated parking brake lever, tilt steering adjust clamp, creep speed button, and an emergency stop button (See Figure 1-4).

⚠Warning

Driving speed of the truck must be governed by your work environment, such as, slippery floors, cross aisles, slanted driving surfaces, load size, visibility or other people working in the area.

Never travel at speeds with or without a load that could be dangerous to yourself or others. Also see the Safety section in the beginning of this manual.

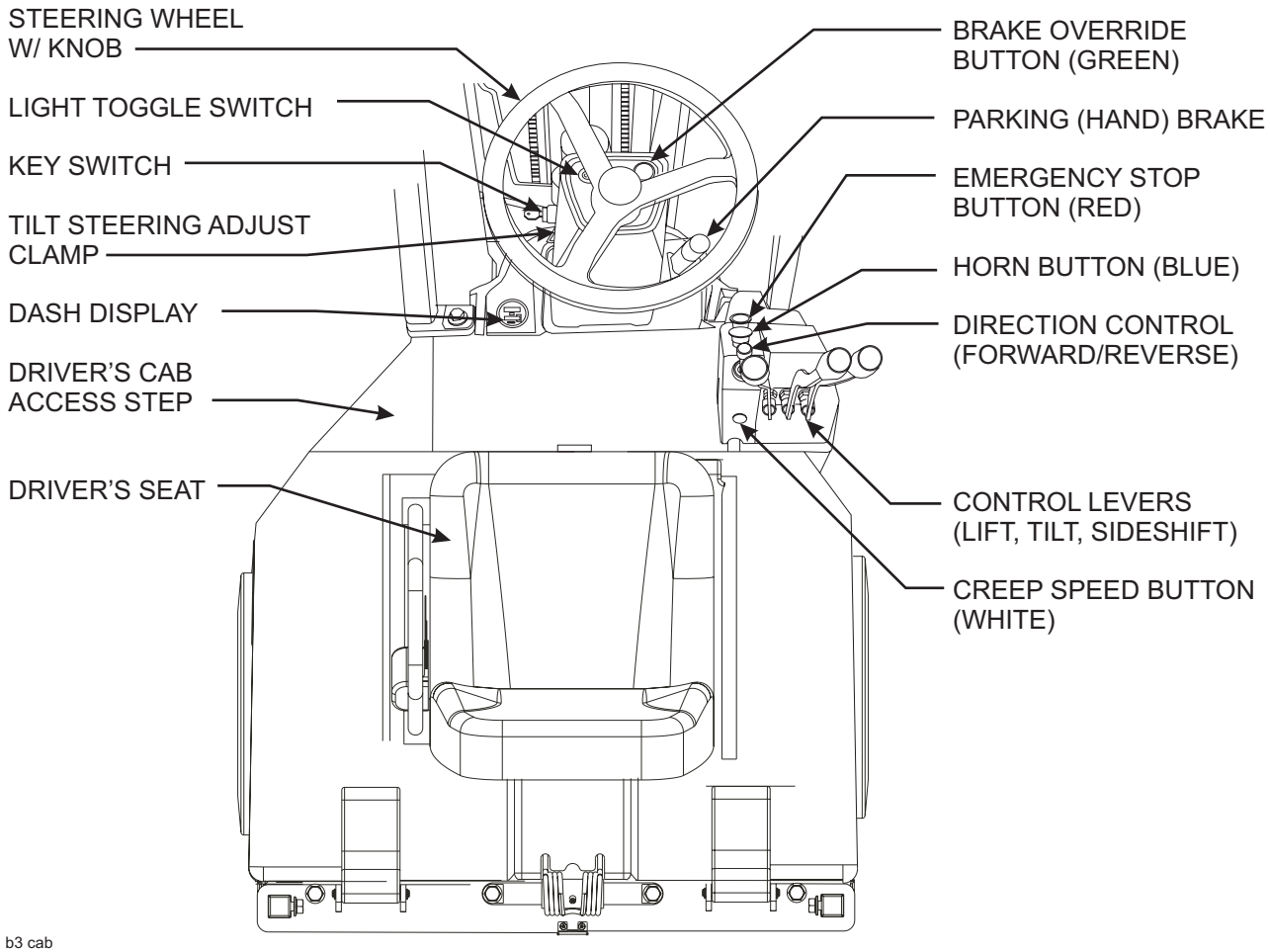


Figure 1-4 Operator's Cab

⚠Warning

Keep vent plugs in place and clean at all times.

Never place a tool or any metal object on top of the battery where it could possibly touch battery terminals causing a short or serious electrical shock.

Use caution when changing battery connectors to ensure that the polarity is not reversed.

When replacing this battery, the truck must be equipped with a battery as specified on the rating nameplate. Failure to comply could result in an unbalanced condition, resulting in tipping the truck and possible personal injury or loss of life.

Be sure to replace and retighten any battery restraints which have been installed on the truck.

If the truck has been shipped with batteries installed, first remove the batteries from the truck. If the batteries have been shipped with electrolyte installed, check the specific gravity of the electrolyte using a hydrometer to determine if a charge is needed (See Figure 2-1).

If the reading is between 1.280 and 1.290, the battery is fully charged. If the reading is down near 1.150, the battery must be charged as described in "Charging a Wet Battery," page 2-2 and "Charging a Dry Battery," page 2-6.

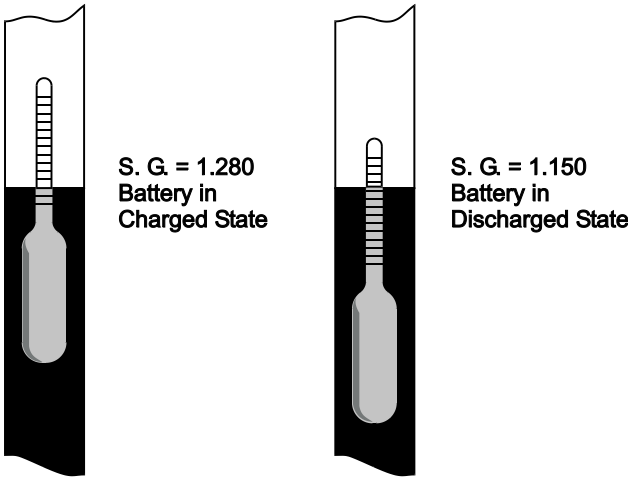


Figure 2-1 Battery Charge State Using a Hydrometer

7. Use the removable battery box slots located on the bottom of the removable battery box to lift the battery box and battery from the truck (See Figure 2-5).
8. Connect the appropriate lift and support apparatus (overhead crane, crossbar and chains) to the battery and remove from battery box
9. Install the new battery into the battery box. Lift the battery/battery box using the removable battery box slots and place back in the forklift (See Figure 2-5).
10. Connect the battery electrical connector (blue). Situate the excess wiring between the battery and the side wall of the truck, making sure the wires are not exposed causing a “pinch” condition when the battery cover is closed.
11. Release the overhead guard latch, lower and secure the top cover. Make sure the front battery cover latch is secured and that no wires are pinched (See Figure 2-2).

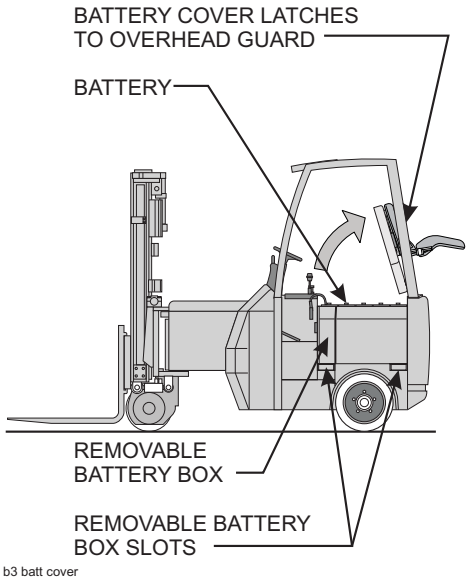


Figure 2-5 Removing Battery and Battery Box

Storage, Towing or Shipping

Truck Storage

For long-term storage, the truck battery should be removed and stored where it can be periodically checked and recharged every three months.

The truck should be stored indoors within a temperature range of +35° F (2° C) to +115° F (46° C) and a relative humidity of 90%.

The truck should be raised with the tires at least 2” (51 mm) off the floor and the frame set on large wooden blocks. Hard polyurethane tires, over long periods of time can develop flat spots that may not return to normal when the truck is returned to service, rendering the tires defective.

If the truck must be stored outside, it must be covered securely with a tarpaulin. Continued exposure to sunlight will cause deterioration of rubber tires, gaskets and hoses, as well as vinyl seat coverings, etc.

Battery Storage

In general, batteries that are fully charged with the electrolyte at the proper level may be stored for up to one year. Batteries should be stored in a cool, dry, well-ventilated area, away from direct sunlight. Batteries without covers should be covered with a non-conductive material to protect them from dirt, moisture, etc.

IMPORTANT !

Do not drape flexible plastic sheeting over batteries as it might trap explosive gases underneath. For batteries stored for more than one, consult the battery manufacturer.

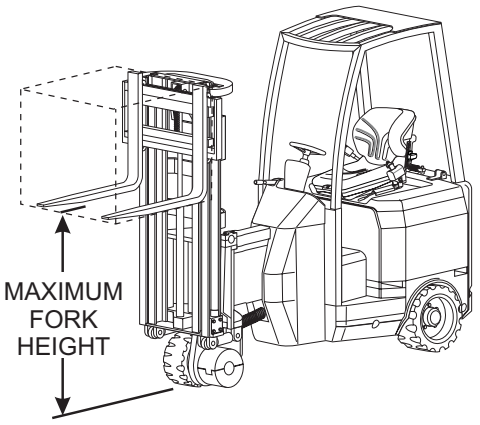
Consult the battery documentation or the manufacturer for storage method and routine inspection required during the temporary storage interval.

Maximum Fork Height

⚠Warning

The load capacity of your forklift decreases the higher you raise the forks. Refer to the rated capacity at the heights listed on the identification plate. Failure to heed these guidelines can cause your forklift to tip over causing serious injury or death.

The maximum fork height, is the highest position your Bendi forklift can lift a load (See Figure 3-6). This is measured from the floor to the forks when they are raised in their highest position. The higher the forks are raised, the less stable the forklift becomes.



b3 max lift

Figure 3-6 Maximum Lift Height

Tilting Considerations

The amount of forward and rearward tilt you should use is governed by the application.

When you travel with the truck loaded, you should tilt the mast rearward as well as keep the load low. This will help stabilize loads with an uneven weight distribution.

When you load at high elevations, tilt the load back far enough to seat it against the load backrest or forks.

When you unload at high elevations, make sure you only use enough tilt to place the load onto the rack or stack.

Attachments

⚠Warning

Never modify your Bendi forklift in any manner. Only options and attachments approved by Landoll Corporation may be installed on the truck. Other modifications will void the warranty and can cause serious injury or death.

Attachments to the forks may affect the load center. When the factory, dealer, or distributor installs attachments approved by Landoll Corporation, an additional identification plate is attached to the truck. The new plate identifies the type of attachment, the changes in the load centers, and the rated capacity.

It is illegal to use attachments for which revised capacities are not available.

Determining the Weight of the Load

In addition to the rated capacity you must determine the weight of the load ***before*** you attempt to lift it with your Bendi forklift:

- Weight is listed on pallet wrapper
- Weight is listed on Bill of Lading
- Weight is determined by multiplying the weight of each small container by the number of small containers on a pallet. Each small container should be marked with its weight.
- Ask your supervisor when in doubt

Direction Control Lever

The direction lever is located on the front of the control pod (See Figure 4-6).

Operation - Push the lever away from you for forward travel and pull it toward you for rearward travel. The lever may be moved while the truck is in motion “known as “brake by plugging”). The motor will automatically come to a smooth stop and then reverse direction. Placing the lever in neutral while traveling will bring the vehicle to a quick stop.

Lift Lever

The first lever (closest to the operator) on the front of the armrest is the lift lever (See Figure 4-6).

Operation - Pull it back to lift the forks; push it forward to lower the forks

Tilt Lever

The second lever on the front of the armrest is the tilt lever (See Figure 4-6).

A visual indicator is provided so you can easily determine the number of degrees the mast is tilted.

Operation - Pull it back for backward tilt; push it forward for forward tilt.

Side Shift Lever

The third lever on the front of the armrest is the side shift lever (See Figure 4-6).

Side shift is a standard function on Bendi forklifts.

Operation - Pull it back to shift to the right; push it forward to shift to the left

Horn

The horn is located on the control pod (See Figure 4-6). It is the blue button.

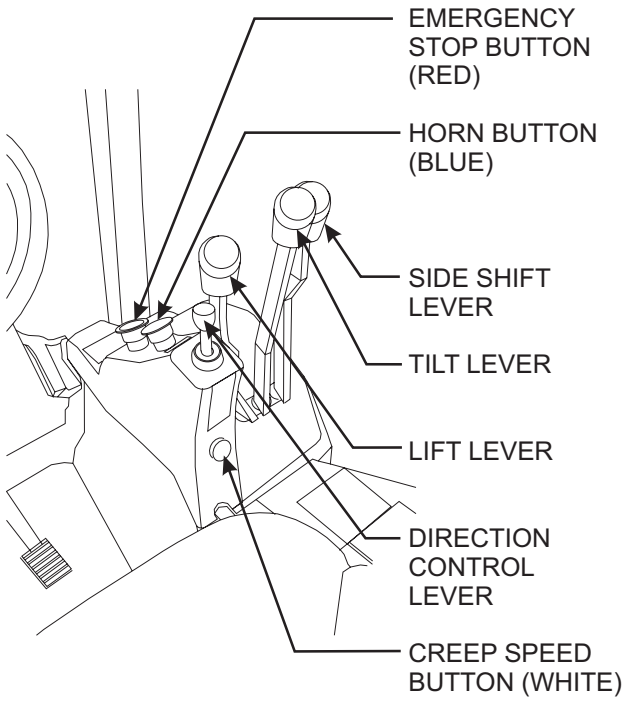
Emergency Stop

The emergency stop button is located on the control pod (See Figure 4-6). It is the red button.

Creep Speed Button

The creep speed button is located on the control pod (See Figure 4-6). It is the white button.

Operation - Depress the button to cut the maximum truck speed by 50%. This button is only to be used when training, gaining familiarity with the truck, and for added control when loading/unloading in a narrow aisle. Depress the button again to return to maximum speed.



b3 control levers

Figure 4-6 Control Levers

11. When the front right hand corner of the load (item 1) Figure 4-19 clears the rack, stop backing and turn the steering wheel clockwise to straighten out the forks so they are parallel with the body of the truck (See Figure 4-20).
12. Lower the forks until they are 4 in. to 6 in. off the ground and slowly drive the truck to the next location observing the safety rules previously stated.

⚠Warning

Lowering the mast improves driver visibility, and improves the stability of the truck by reducing the possibility of personal injury or damage to the load if it were to slip from the forks.

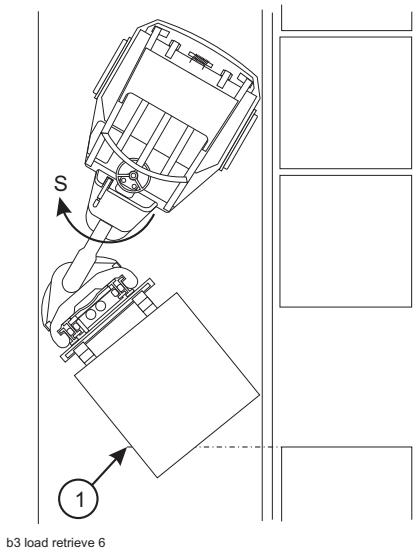


Figure 4-19 Retrieving the Load

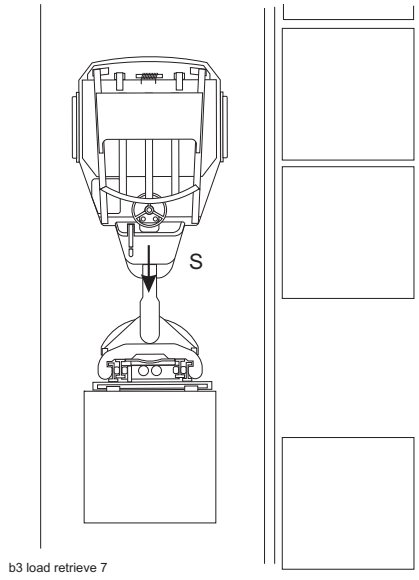


Figure 4-20 Normal Travel Position

Tilt and Shift

During the tilt operations, the lift pump provides oil flow to these cylinders (See Figure 4-38). Oil flow drives one side of the cylinder while relieving the pressure on the other side. This produces smooth tilt “backward,” and shift side-to-side movements.

During tilt forward operation, an additional pressure valving (anti-cavitation [1]) is provided internally to the tilt cylinders.

If a load is present on the forks, the weight of the load forces the forks downward causing the tilt cylinders to draw fluid by suction. If the load weight is great enough, the cylinders may move too quickly and cavitation[1] occurs. This can cause severe jolting, enough to possibly dislodge the load.

To protect against cavitation[1], the tilt cylinder manufacturer provides internal pressure control to apply pressure to both sides of the cylinder thus producing a smooth downward motion - prevent jolting.

Lift and Lower

The lift circuit consists of a primary cylinder and two secondary cylinders all driven in parallel, a directional control valve, a velocity fuse and a flow regulator (internal to mast assembly) (See Figure 4-38).

The primary cylinder begins lifting the forks and the load, followed by the secondary cylinders to drive the mast rails, forks and load upward. The primary cylinder having a larger bore than the secondary cylinders requires lower pressure to operate.

Consequently, the primary cylinder extends first. When it is extended, fluid pressure increases to drive the secondary cylinders. As previously described, both pump cavities are used to provide increased flow.

When the lift valve is switched to allow the forks to drop, the flow regulator (internal to the mast assembly) governs the amount of flow (about 60 gpm) diverted to the tank, thus controlling how quickly the forks lower.

The velocity fuse (also internal to the mast assembly) is a safety device that activates if a line failure occurs, such as, a broken hose, split O-ring, etc., or a valve malfunctions. The velocity fuse detects this large loss of pressure (or rapid oil flow) and immediately activates to prevent the load from free-falling by limiting the drop speed relative to the maximum lift capacity (3,500 lbs.).

[1] Cavitation, the formation of partial vacuums in a liquid (such as oil) by a swiftly moving solid body (such as a cylinder).

ROUTINE MAINTENANCE SCHEDULE FOR BENDI FORKLIFTS							
Operation	*Time	First 2 wks	First month	Monthly	Quarterly	Semi-Annually	Annually
	Hours	50-100	1st 200	200	600	1000	2000
Seat Belt, Buckle, and Retractors - Functioning Smoothly				X			
Forks, Top Clip Retaining Pin and Heel - Condition					X		
Load Rollers - No Greater that 1/16"					X		
Mast Chains - Lube with SAE 40W oil or Bowman Heavy Load Red Grease - Check for Wear and Stretch					X		
Steering Operation - Functioning Smoothly; Lubricate Steering Knob.					X		
Brake Fluid - Check Level					X		
Hydraulic Oil Filter - Change Element and Check for Proper Level - Check Pressures					X		
Operator's Compartment Capacity Plate Attached - Information Matches Model, Serial No., and Attachments					X		
Check Brushes for Pressure or Wear, and Surface of Commutator for Roughness (Hydraulic Oil Pump and Power Steering Pump)					X		
Check Traction Motor Brushes for Pressure and Wear, and Surface on Commutator for Roughness					X		
Check Resistance Between Truck Body and Negative/Positive Terminal of Battery					X		
Clean Commutator on Traction Motor					X		
Remove, Clean, and Repack Battery Rollers					X		
Check that Terminal Studs and Mounting Bolts on Motor are Clean and Tight						X	
Clean Cooling Holes on Motor of Debris or Restrictions						X	
Parking and Service Brakes - Functioning Smoothly, Check Pads for Excessive Wear							X
Hydraulic Oil - Change							X
Hydraulic Reservoir Suction Screens - Clean with Solvent							X
Check Resistance of Contactor Coils							X

*** Perform maintenance at interval or hours of operation, which ever occurs first.**

Note: The above measures do not comprise a complete service schedule. It is essential that your forklift truck is regularly serviced by Bendi approved personnel. Recommended service intervals are as follows:

Single shift*	Every quarter
Single to double shift	Every other month
Continuous use	Monthly

* Single shift is 40 hrs./ week