



## **Material Handling Products Group**

### **Learning / Teaching Bendi Operating Techniques**

**Step 1.** Seat the operator comfortably in the seat – Adjust the weight tension for proper floatation, set the fore/aft spacing to the operator’s preferred position. Set the seat back rake angle to the most vertical position.

**Step 1a.** Adjust the steering wheel tilt angle and telescope for operator comfort. Fasten the seat belt. Always use the steering knob with the left hand and the hydraulic controls with the right hand.

**Step 1b.** Adjust the fork spread to match the centers of the pallet openings.

**Step 2.** Familiarize operator with all controls, including readouts for battery charge, hour-meter and fault codes. Understand “return to neutral” on the direction selector and the procedure for emergency battery disconnect. Make sure the fans are running in the bottom and front of the truck. Let the truck cycle through its pre-checks before operating the unit.

**Step 3.** Driving any new machine is a process of training the operator’s brain to get an instinctual correct response to the task at hand. Start by driving the unit for ten minutes in a wide open area. Steer constantly left and right to get steering feel. Plug brake the truck at various speeds to see how the truck responds. Lightly use the service brake to develop the touch for smooth stopping in emergency situations. (Note: Plug braking is the preferred way to stop or change direction. Plug braking means to simply change the direction selector on the go.) Steer to the full 90 degree steer angle and spin the unit around in both directions going in forward and reverse. **Get the feel for “creep” speed control at the full steer angle.** Precision movement is required in the sharply bent steering positions to put pallets away. While driving, start using the hydraulic controls for lift, tilt and side-shift. Develop a touch that allows “feathering” of the hydraulic controls. Pull the hydraulic lever slightly to turn on the hydraulic pump without moving the hydraulic function. Crack the valve open slightly to start hydraulic movement in the function selected. This is especially important on the tilt lever for future use in high stacking. After creeping, feathering, plugging, steering and driving in reverse and forward, you are ready to pick up a pallet in a narrow aisle. Except for steering like a car, the unit is very similar to any other sit down rider electric forklift.



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**Step 4. Training the brain** – Learning to smoothly wind and unwind the truck while entering a pallet. This is the only “new” thing about driving a Bendi and it is the most important new skill needed to operate the unit. The quickest way to simulate this technique is “**target practice**”. Find a seam in the concrete in an open area and bend the truck to the right 90 degrees so that the near fork is sitting lengthwise on the seam. Put a “target” (business cards work well) on the floor, 4 feet straight out from the near fork tip on top of the seam in the concrete. The new operator needs to “fly the near fork straight as an arrow directly at the “target” straight down the seam. Stop when the fork tip reaches the target. Next, back-up the Bendi while holding the fork in perfectly straight alignment with the “target” right over the seam.. Stop backing up when the truck reaches its full 90 degree bend. Repeat over and over till steering speed is smooth and fairly precise. Bend the truck 90 degrees the other way and repeat the process on the other side of the truck. This training method works well because no product gets displaced, the truck does not get stuck in a pallet and an operator can focus on the one new thing – steering to keep the forks straight at a target while moving the truck. When the operator does this correctly he/she has just trained the brain. Five to ten minutes should be plenty of time to “get” this technique.

**Step 5. Set up a narrow aisle training area** with 6 empty pallets. Put 3 pallets spaced 4” apart on each side of an “aisle” 7 feet wide, face of pallet to face of pallet. Adjust fork spacing to the centers of each of the pallet openings. Forks should be 40” long or less, not 42” long. Shorter forks are easier to get in and out of the pallet.

**Step 6. Find the starting position**, the single key to success. Drive the Bendi straight down the aisle 6” to 8” from the row of pallets on the left side. You are going to go for the center pallet on the right. (Note: Always learn by turning to the right. The hydraulic controls are in your field of vision and the side-shift lever works intuitively. Push lever away – pallet moves away. Pull lever back – pallet moves back. The side-shift lever works opposite on the left side of the truck.) Stop the Bendi in the straight ahead position with the front of the front tire even with the center stringer of the center pallet or the pallet opposite the pallet you target. Do not touch the brake pedal after stopping. No judgment is required for the next step. Close your eyes if you want to – look at the ceiling – turn the steering to the right - clockwise on the steering wheel until the steering dead ends or locks.



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You will hear a small “clunk” when the front reaches its full pivot. Set the forks at the correct vertical height to go into the pallet with the mast at zero degrees tilt - level forks-use the tilt indicators on the truck to set the tilt.

**Step 7.** Pallet practice-- With the unit bent 90 degrees, start driving your forks toward the pallet opening on the other side of the aisle. You must steer counterclockwise smoothly while driving toward the target pallet. Keep the forks perfectly straight into the centers of the pallet openings while driving and steering smoothly. Drive the forks all the way into the pallet. Do not pick up the pallet!! Back the forks out of the pallet opening keeping the forks perfectly straight in relation to the pallet. Steer clockwise smoothly while backing out. Keep “sawing” your forks in and out of the pallet 2-3-4 times. Reset the start position of the truck. “Saw” your way in and out of the pallet till you are steering smoothly, instinctively – and are keeping the forks going perfectly straight in and out of the pallet. You have just re-enforced the training of your brain with a real pallet in a real aisle.

**Step 8.** Pulling a pallet out of its position. Keep the body of the Bendi 6” off the pallets to the left, bend the full 90 degrees to the right until steering stops – no foot brake – center the side-shifter on the carriage. Drive the forks into the center of the pallet openings. SIDE-SHIFT down the aisle away from you to the end of the side-shift stroke by pushing the side-shift lever forward. Lift the pallet 1” off the floor. Back the Bendi with the pallet out of the storage position steering smoothly clockwise to keep the pallet perfectly straight in the pallet opening. When/if you steer to the full lock position and the pallet has not cleared the pallet storage position, start pulling the pallet back closer to you with the side-shift. Pull back on the side-shift lever while continuing to back out of the storage position. When the front left corner of the pallet clears the opening, you can then side-shift all the way forward to help clear the right corner of the pallet out of the opening. This side-shift technique is useful and important in aisles 7 feet wide or smaller.

**Step 9.** Putting a pallet back in the opening. Carry the pallet out of the aisle returning to the original start position keeping the pallet 1 inch off the floor. Drive straight down the aisle 6” off the left side and stop with the front edge of the front wheel in the center of the pallet storage position. Use the left side pallet as a guide. Bend the truck 90 degrees (look at ceiling). Drive the pallet into the opening



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steering counter clockwise smoothly. Your perfect final position has the pallet side-shifted all the way down the aisle and centered exactly between the pallets on the floor with 4” of clearance between the pallets. The pallet is perfectly square in its position. Lower the forks and back out of the pallet steering smoothly clockwise. When/if the forks start to swing into the pallet stringers, side-shift back toward you. Always steer to the maximum, then go to the side-shift if you need more clearance. Repeat, repeat, repeat. Now do the same things with the pallets on the left side of the aisle. (Hint: Start driving 6” off the right side of the aisle.....)

**Step 10.** You are now a Bendi operator but here are a few more driving tips. When making a turn into a narrow aisle from a cross aisle, use all of the available space at the outside of the turn to get your rear wheel around the corner without hitting the rack post. For really tight turns take advantage of the 90 degree steering to position your rear wheel as far down the cross aisle as possible before you begin your turn. If driven properly, a Bendi easily can turn with a load from a 7 foot aisle in to a 7 foot aisle. As a driving test set up 4 soda cans in a 6.5 ft x 8 ft rectangle. This simulates the rack posts going from a 6.5 ft working aisle to an 8 ft “bridge” crossing aisle. Practice driving through the cans while carrying a 40” wide by 48” deep pallet 1 inch off the floor. Make 90 degree turns too and from all directions.

**Step 11.** Backing Practice - Put 2 pallets on the floor 20 feet apart. Back your Bendi around them in a small oval race track pattern. After mastering the reverse turns, back the unit through the pallets in a figure - 8 pattern. A Bendi can back through any opening it can drive through. Backing practice helps drivers quickly learn overall truck geometry. Hint: Drive forward around the course then copy those same steer angles while going in reverse.

**Step 12.** Dockwork – Make sure the truck to be unloaded can handle 12,000 to 14,000 pounds of moving forklift on it’s bed – no small trucks!! Make sure it is chocked / locked into position and a heavy duty dockboard is securely in place. Dockboards for Bendi forklifts need be as wide as possible, even as wide as the truck being unloaded. The back end of a Bendi does not have steer tires on it so the back end does not move laterally. To retrieve or place pallets in a truck, drive at least 1 foot away from the side of the truck in toward the center of the truck body. Side-shift all the way right or left depending which side of the truck you are



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on. Pick the pallet up 3” off the floor, back-up till the pallet clears the pallet opening, then side-shift all the way toward the center of the truck. This gives maximum steering range as soon as possible. Back out of the truck, looking over your right shoulder.

**Step 13.** Narrow Bulk Storage / Narrow Drive-in rack with 12-13 foot cross aisle. Back the Bendi into position with the back of the truck on the opposite side of the aisle facing the pallets opposite the row / rack opening. Turn the forks to face the row opening then drive straight in. **DO NOT MAKE A GRADUAL CURVING APPROACH TO THIS ROW LIKE A CONVENTIONAL FORKLIFT.** Imagine you have the Bendi already in the bulk storage row or drive-in rack row. Back straight out till the back of the Bendi touches the other side of the aisle. Bend the truck 90 degrees and drive away. How you get out of the row is also how you should enter the

**Step 14.** Wide Load Handling in a narrow aisle requires that you shift the load as far to the right as possible to put a load away on the right hand side. This position allows the Bendi to be as far left as possible before starting load insertion. Turn and side-shift as necessary to put the load away after stopping with the front edge of the front wheel in the center of the deposit location.

**Step 15.** Mark your mast with tape, paint, white-out, or liquid paper to indicate exact pallet opening heights with mast tilt at zero. These witness marks, placed on both sides of the mast at eye level, will ensure faster, safer, less tiring operation especially when used with the tilt indicators already on the truck. Zero out the tilt and lift the mast till the witness marks line up.

Using this method, you can put your forks directly in the vertical center of a high pallet opening without even looking up.

When going to a high lift height always lift past the known height needed by a few inches. Then lower the pallet by “feathering” the lowering valve to put the forks or pallet at the proper height. This saves lots of stop/starts on the pump, pump motor and contactor.

With a Bendi it is OK to start lifting while traveling straight down an aisle giving the pallet or forks diagonal travel in the aisle. With good timing you can have the pallet/forks at the right height when you get to the pallet opening you want to service. A Bendi cannot be tipped when carrying a load straight out in front of itself.



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### **Step 16. Advanced techniques for operating in very tight aisles.**

Working in aisles that are 78” deep or smaller is possible with standard Bendi units.

One technique that is helpful is: Pick up the pallet that you are going to work with in a slightly diagonal manner with the pallet slightly rotated to the side of the aisle that you are working on. Insert the “near” fork on the carriage all the way into the pallet. Insert the “far” fork with 2” or 3” of fork heel showing. This provides the extra “twist to the pallet” that helps with insertion or removal. Make sure that your pallet is stable on the forks if using this technique. This idea is helpful in the smallest of aisles.

Another helpful advanced method of pallet removal is as follows:

Pick up the pallet and side shift as close as possible to the driver. Rotate to pallet away from the driver as far as possible, till the far end of the pallet touches the rack or next pallet. This is done before any movement of the truck takes place. The pallet is now sitting in the pallet space in a “slanted” or diagonal position. Now back the pallet out of the pallet position holding the pallet at the same diagonal angle throughout the process. This “early turn” of the pallet will allow the inside rear wheel of the Bendi to “back away” from the pallet position and will keep the truck and load from getting stuck in a “locked” or “blocked” situation with the front corner of the pallet against another pallet or the rack upright. The method improves handling speed and eliminates extra side shifting.



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### **Note: Special Instructions for the Propane Bendi IC T4 Forklift**

When stopping just take your foot off the “speed control pedal”. The truck will stop very quickly. Shift direction with foot off the speed control. This gives positive quick engagement of the transmission in the new direction. Engage speed control gradually to insure best engine/transmission response and truck controllability. The speed control pedal works like the accelerator pedal on any other “electric” forklift. Use this pedal to “creep”. The big pedal is a park brake or “panic stop” brake and is not used during normal operation. It is connected to the transmission not the engine. If truck is in neutral, accelerator will not rev engine. We call it a "go" pedal.

You must learn to "feather" this control pedal to gain slow speed control of this truck. Practice over and over till you can "creep" the truck when driving straight ahead or 90 degrees off to the side. The lift lever revs up the truck but those increased RPM's do not affect the travel speed.

### **Note: Special Instructions for the Bendi 3 Wheel Truck**

The three wheel unit does not “fold” itself into the open space on the opposite side of the aisle from the target pallet, the way a standard Bendi does, as you rotate the front end. You must drive further down the aisle and place the back of the front wheel or pivot barrel at the center stringer of the pallet on the opposite side of the aisle from the target pallet. You then “back” the unit (18”) into position as you steer the truck. Use the “creep speed” button to maintain an even speed during pallet put away or removal. This truck turns 200° so the sideshifter will need less use but is important.



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### **Final Rules:**

A Bendi will almost automatically put a load away in a small aisle, if you start from the right position and follow the proper steps. If you start from an incorrect position, putting the pallet away or retrieving the pallet will be impossible. If you have real difficulty in getting a pallet out, set the pallet down on the rack/floor and get your forks out any way possible (Back tilt and side-shift). You started from the wrong position. Reset the start to the correct position and pull the pallet. The hardest pallet position to work is the one on the floor because tilting back does not pull the pallet closer to the truck or out of the rack at the floor level. High pallets can be pulled halfway out of the rack by simply tilting back without even moving the Bendi. Extra deep loads should be stored high for this reason.

**Rule #1.** Start from the correct position.

**Rule #2.** Turn the full 90 degrees, no judging, then turn out of that position to drive into the pallet position.

**Rule #3.** Drive forks all the way into the pallet with forks centered in the pallet opening. Handling loads out on the forks makes loads deeper and harder to pull.

**Rule #4.** Side-shift down the aisle away from you before picking up or depositing a pallet. This allows a full return stroke of 12" when leaving the pallet position, if you exceed the steering limit. Use all of the steering first then side-shift as you back away.

**Rule #5.** Plug braking is the preferred method of stopping or changing directions. The service brake is for quick stops or control on ramps.

**Rule #6.** Have Fun! You soon will be doing amazing things very quickly with the Bendi Forklift.





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### ***BENDI DRIVER TRAINING - CONDENSED VERSION***

**Step 1.** Seat the operator comfortably in the seat and adjust the steering wheel tilt angle and telescope for operator comfort. Fasten the seat belt.

**Step 2.** Adjust the fork centers to the only slightly wider than the centers of the pallet opening.

**Step 3.** Start by driving the unit for 2-3 minutes in a wide open area. Steer constantly left and right to get steering feel. Plug brake and foot brake the truck at various speeds to see how the truck responds. Use the hydraulic levers while driving to get a feel for them.

**Step 4.** Put 2 pallets about 20 feet apart. Drive as close to the pallets as possible without hitting them. Drive in an oval pattern forward and backward. Drive in a “Figure 8” pattern forward and backward.

**Step 5. Get the feel for “creep” speed control at the full steer angle.** Lock the steering at 90 degrees to the right and use the accelerator to move the truck as slowly as possible in a circle. Go forward and back. Learn only the control of the foot pedal. Drive so that you barely see movement.

**Step 6. “Target Practice”** This is the only “new” thing about driving a Bendi and it is the most important new skill needed to operate the unit. Put the Bendi in an open area and bend the truck 90 degrees to the right. Put a target on the floor, 4 feet straight out from the fork tip nearest the operator. The new operator needs to “fly that fork straight as an arrow directly at the “target”. Stop when the fork tip reaches the target. Next, back-up the Bendi while holding the forks in perfectly straight alignment with the “target”. Stop when the truck reaches its full 90 degree bend- Hear a “clunk”. Repeat over and over till steering speed is smooth and precise. The time it takes varies with the new operator. It may be necessary to sit beside a rookie having trouble and “steer” the truck for them a few times.



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**Step 7.** Set up a narrow aisle training area with 6 empty pallets. Put 3 pallets spaced 4” apart on each side of an “aisle” 7 feet wide, face of pallet to face of pallet. Adjust fork spacing to the centers of each of the pallet openings. Forks should be 40” long or less, not 42” long. Shorter forks are easier to get in and out of the pallet.

**Step 8.** You are going to go for the center pallet on the right. Drive the Bendi straight down the aisle 8” to 12” from the row of pallets on the left side. Stop the Bendi in the straight ahead position with the front of the front tire even with the center stringer of the center pallet/the pallet opposite the pallet you target. Do not touch the brake pedal after stopping. No judgment is required for the next step. Turn the steering to the right - clockwise on the steering wheel until the steering dead ends or locks. You will hear a small “clunk” when the front reaches its full pivot. Drive the forks into the pallet and steer smoothly. Side shift as far as possible away from the operator down the aisle before lifting the pallet.

**Step 9.** Lift the pallet 1” off the floor. Back the Bendi with the pallet out of the storage position steering smoothly clockwise to keep the pallet perfectly straight in the pallet opening. When/if you steer to the full lock position and the pallet has not cleared the pallet storage position, start pulling the pallet back closer to you with the side-shift. Pull back on the side-shift lever while continuing to back out of the storage position. When the front left corner of the pallet clears the opening, you can then side-shift all the way forward/left to help clear the right corner of the pallet out of the opening. This side-shift technique is useful and important in aisles 7 feet wide or smaller.

**Step 10.** Put pallet away. Center pallet and SS on truck. Drive 6-8 inches off the left side pallets to put pallet away on the right. Stop front edge of front tire at the center stringer of the pallet opposite the opening. Turn 90 degrees – hear “clunk” – no brake. Drive in and side shift away from you.

**Step 11.** Mark the mast for Lift Height with “Wite Out.”

**Step 12.** You are now a Bendi operator - **see next page for more important info**



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To get a copy of a PowerPoint that thoroughly explains the marking of the mast procedures go to **Landoll.com, Material Handling, Contact us.** Your Landoll area manager will send you copy.

To see Bendi units in action making the moves that these written instructions are trying to teach – Go to; **Youtube videos, USA Bendi Doing ManyJobs, USA Bendi Smooth Operator.**

If you would like **on the spot coaching** your area Landoll Manager (**Landoll.com, Contact Us, Material Handling.**) can FaceTime with you or do a “teams” meeting.

You should **read all above** and be familiar with your unit before the meeting. Have a second person and a BlueTooth speaker/Airbuds available for best results. This remote coaching works great but call to make an appointment.