

# Application Success

## Mobile On-road



### Application Overview

Mobile trailers for construction and agriculture. The “live bottom trailer” competes with trailers that use a hydraulic cylinder to lift the trailer body, forcing the contents to exit the rear “barn door”. The live bottom means the trailer stays horizontal and uses a hydraulic motor driven belt to off load product. The advantage is the driver can off load slowly over 20 minutes, while still moving, dropping the gravel on the road bed. It also can be stationary and the belt can move produce, typically potatoes without damaging the product.

### Why Automatic Lubrication?

The two drive conveyor chains must be oiled, the chains are under extreme pressure due to the product load on the belt. The pins and plates wear quickly unless lubricated. Bijur Delimon's MultiPort Lubricator is activated by the hydraulic motor circuit, meaning whenever the conveyor is ON the MultiPort Lubricator pumps oil through a PVB-8 to four chain points, which lubricates two chain plates on each side. The customer tried “lube-less” sealed chain, but it failed due to tension and debris getting between the plates.

Oil is applied by the PVB-8 to the four round brushes mounted on a special brackets to protect them from debris.

*Please contact factory for additional information on this or any other application.*

### BDI Products

- + MultiPort Mobile Lubricator
- + PVB Divider Valves

### Advantages

- + Small oil output is divided to four brushes.
- + Lubricator operates continuously with conveyor movement. Does not consume hydraulic system oil.
- + Simple design, easy to understand.
- + MultiPort is sealed for mobile use, to keep water and dust out of oil.
- + System includes oil pressure gauge with clear reservoir to verify pump operation. The driver/mechanic can fill the sealed reservoir and push the conveyor “ON” button to test system.
- + Lower operating cost, lubrication extends conveyor chain life, enables use of commercial chain in place of expensive lube-less sealed chain.
- + MultiPort Lubricator can lubricate chain with ECO friendly oil with agricultural applications and not contaminate the potatoes or the farm land.

## Products Utilized for Mobile Trailers

### *MultiPort Mobile Lubricator*

+ **Description:** 12 VDC, 4 liter reservoir, oil

The MultiPort Lubricator is an electrically driven multiple outlet lubrication unit design primarily for use with progressive divider valve systems. The unit is capable of housing up to three independent pumping elements for direct feed to lubrication points or through a distribution network of progressive divider valves. These lubricators are available with either 12 or 24 VDC motors which make them ideal for use in mobile applications. Use of a remote timer/controller (SMDC) is required for this lubricator.



### *PVB Divider Valves*

+ **Description:** 8 outlet valves were used, cycle indicator pins were supplied

PVB Mobile Divider Valves accurately meter and dispense lubricant to as many as 20 outlet lines at operating pressures up to 3600 psi (248 bar). Output volumes are fixed at 0.17cc (0.01 cu. in.) per cycle but can be combined with other outlets by using appropriate fittings for larger outputs. Valves are available with cycle indicator pins to provide visual confirmation of system operation. In addition the cycle pin can be fitted with a switch to provide electrical feedback to a system controller.



## Typical System Layout

The system consists of a one outlet 12 VDC, oil, MultiPort Lubricator that feeds a four outlet PVB Divider Valve. These 4 outlets are plumbed to 4 brushes that oil the chains. The on- off of the MultiPort Lubricator is controlled by the chain conveyors electric circuit. When the chain is running the MultiPort Lubricator is dispensing a slow metered amount of oil to each brush.

Refer to the following datasheets:

+ *Datasheet #35577:*  
*MultiPort Mobile Lubricator*

+ *Datasheet #35635:*  
*PVB Mobile Divider Valve*

## Background

The customer used to “bleed” oil from on-board hydraulic reservoir to lubricate the chain, however consuming hydraulic fluid runs a critical system reservoir down, eventually disabling or damaging the hydraulic motor. Hydraulic oil AW32 is not an ideal lubricant for chain. Now the customer uses engine oils or ECO green fluids. Both provide superior wear reducing characteristics.

Bijur Delimon International took the time to visit the customer and identify various solutions. BDI engineering further developed BOM and a new sealed oil pump, with other necessary product features required by a mobile application. The solution works well and is affordable. If the end customer will fill the reservoir, we are confident the conveyor chain will last for the life of the trailer.

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