



Level II

Showers Unit Manual

Revised 3/18 - Beasley

Shower Trailer Setup

- Locate electricity, water, and drainage sources. Are there enough electrical cords, garden hoses and drain pipes to reach source? We need the most level location that is possible
- Level trailer using level bubbles on front and side of trailer. If more than one number from level, drive tires onto wooden blocks to level trailer. Put tire locks between tires. Disconnect trailer from vehicle. Use tongue jack to level trailer front to rear. If the level bubble is in the front of the level, then the front needs to come down. For leveling bubbles on the front of the trailer – if the bubble is on the left, the right side needs to be raised. If the bubble is on the right, then the left side needs to be raised. Lowest side
 - lower stabilizer jacks first to raise trailer level. Do not raise tires off the ground, if tires raise off ground, you may have to put another wooden block under tires. Other side
 - lower stabilizer jacks to contact surface for stabilization
- Make sure all drains for water lines under trailer are closed
- Empty all shower rooms
- Remove drain cover for washer
- Assemble drain system. Put black tub under trailer for washers to drain into.
- Connect water pressure regulator to side of trailer marked "A". Connect garden hose to regulator. Water pressure regulator in propane box.
- Run electrical cords – two separate 20 amp circuits are needed to supply both washer and dryers with electricity, with only one circuit, you can only operate one washer and dryer
- Put wooden steps in place
- Open valve on propane tank
- Screw in light bulbs – seven of them total
- Sweep out shower rooms
- Clean showers and floors with cleaner in water to remove dirt. Let air dry
- Using bleach water, wash down sink, shower, floor, waste basket and chair. Let air dry
- With clean water and clean rag wash off the bleach. Let air dry
- Put shampoo and hand soap pump bottle in shower stall and hand soap on sink
- Lay bath mat on floor by shower
- Put waste basket under sink and chair in room
- Totes of towels and wash cloths on each side of trailer
- Mesh laundry baskets for each side of trailer for dirty towels, wash clothes, floor mats and cleaning rags
- Totes of bath mats and scrub rags for each side of trailer

Disassembling Shower Trailer

- Disconnect garden hoses and drain
- Drain water tank
- Put shampoo and soap bottles back into totes. Put paper towel rolls back into totes
- Put light bulbs into tube socks and place in sinks
- Disconnect drain system - Put 1 ½" pipe into 2" pipe. Stack in corner, secure with bungee cord
- Unless you are moving the trailer to another site, open drains under trailer
- Coil garden hoses and electrical cords into blue barrel
- Place totes in shower stalls
- Put steps into shower with top of step against wall, secure to metal rail with bungee cords
- Put remaining items in shower rooms according to MASTER LOAD PLAN
- Raise all four stabilizer jacks -ALL THE WAY
- Hook trailer to towing vehicle - check trailer lights
- Remove tire locks between tires
- If trailer tires are on boards, put boards in trailer
- Make sure all items are in the trailer
- Check tires air pressure - 100 pounds - tire gauge in black tool box
- Put padlocks on all the doors and trailer hitch

General description of the MBC Shower Trailer and the equipment/material associated with its operation:

The trailer was manufactured by "WellsCargo" trailer manufacturing. It was custom designed by MBC DR Members to be used as a shower trailer. The cargo box is 8 ft. wide by 28 ft. long and 7ft 4in. inside height. There are three access doors per side; one for each shower room. Each shower room is approximately 7½ ft. long and 45 in. wide. The walls between each shower room are one thickness of ¾ in. plywood and covered with a plastic material intended for shower room use. The shower stalls are Aquaglas brand, 36in. x 36in. rough opening size. A Delta single handle control valve (with "scald guard") serves each. There is a safety grab bar mounted in each shower stall. Humidity exhaust vents are located immediately above the shower stalls. There is a small lavatory mounted in each shower room. A handicap safety grab bar is mounted near the lavatory and serves as a towel bar as well. (The shower rooms are not ADA compliant however.) A coat hook is mounted near the door for hanging robes and clothing. A limited amount of heat can be supplied during cool weather by changing the light bulbs to heat lamps.

At the rear of the trailer is a room for the mechanical and electrical services. It also contains two washer/dryer stacked sets. There are three instantaneous propane gas water heaters mounted on the wall. The pressure water piping system is set up so that one water heater serves two shower rooms. (1&2), (3&4), and (5&6). One water heater can also serve outside lavatories. The other two water heaters will also each serve a washer/dryer set. There are cross connects between the hot water piping should a water heater malfunction and must be taken out of service temporarily. The electrical system is set up as six individual 120 volt/15 amp breaker circuits. Each must be powered by an extension cord run to a 20 amp power source located somewhere outside and away from the trailer. This allows for a quicker setup rather than having to wait for a special electrical server to be set by the local utility service. If heavy usage of the showers and laundry services is expected, an electrical load center should be set up outside and power cords run to it.

The water and propane connections are located on the lower outside of the trailer near where the water heaters are mounted. The water pressure-storage tanks will be set up outside. The propane tanks must also be set up for use outside the trailer. Most of the permanently installed waste water drain piping is mounted inside the trailer frame to reduce possibility of road damage. There is a drain outlet on either side located just forward of the front axle and can also be connected to when using outside mounted lavatories.

The humidity exhaust system is composed of four inch diameter plastic pipe with holes in it mounted over each shower stall and running the length of the trailer. Then connected to an exhauster blower for each side mounted in the overhead of the mechanical room. Exhaust is through outlet vents mounted in the rear wall area over the back doors. Fresh air, including combustion air, is supplied through inlet vents located in the lower part of each door.

Loose equipment consists of propane tanks, the waste water disposal system, two potable water pressure-storage tanks, potable water supply hoses, water filters, water pressure regulator, electrical cords, light bulbs, wood blocking, one step ladder, seven sets of wood steps each with a landing, wheel chocks, loose wood blocking, a 10x10 pop up tent, and spare parts. Materials consist of 100+ sets of towels, personal sized bath soap bars, shampoo, miscellaneous personal hygiene items, cleaning supplies, and laundry detergent. Also, packing and securing materials.

All this equipment and material must be stored for transport in the shower rooms and mechanical room. It is critical that all loose equipment and materials be stored and secured properly during transport to prevent damage. Packing and securing material must be used.

The trailer can be towed for short distances by a late model half-ton heavy duty pickup. A $\frac{3}{4}$ ton equipped with tow package is better. A one-ton (3500-350 series) with dual wheels is best for long distances. Four-wheel drive with high-low range is recommended. Standard outside mirrors will work but more careful attention is needed. Hitch equalizer drawbar must be used with $\frac{1}{2}$ or $\frac{3}{4}$ ton pickups. A spare tire is mounted over the hitch. The stabilizer jacks mounted underneath are not designed to lift the trailer. The loaded trailer weight will be over 9000 lbs.; maybe more.

STOP!

Before you unload anything from the trailer make

100%

sure you have these three things available first

1. Sanitary drain
2. Electricity -20 amp circuit source
3. Water supply

Check with Blue Cap for set-up location

Positioning the Shower Trailer Location:

It is important that the trailer be set up on a hard surface, preferably in a level corner of a parking lot and not near a traffic flow area. Ensure that the location is not subject to standing or heavy flowing water during a rainstorm.

In some situations, a gravel parking lot or grass may be the only choice available. There are three needs to be met when choosing the location, more important than convenient access for shower and laundry clients.

1. **Sanitary Drain** - a sanitary drain is the first priority. It should be close enough that the waste water disposal drain piping can be laid to it without being exposed to traffic. For gravity draining, the distance should not be more than about fifty feet if the sanitary drain access is level with or only slightly sloping downward to it. If the sanitary drain access is above level, the waste water will need to be pumped. By pumping, the distance can be as much as three hundred feet or more as long as the discharge piping is 1 ½ to 2 in. and not over a 10 ft. lift. The pump can actually lift to about 15ft. but the output is low.

DO NOT use a storm drain unless absolutely necessary and only after given permission by the local health department. If in a desperate situation, a large waste water holding tank can be set up and pumped out as necessary by local waste disposal contractors. This may be done only with approval and as instructed by the local health department.

2. **Electricity** - Each circuit in the shower trailer is a completely separate and independent 120 volt with 15 amp circuit breaker. There are six circuits set up in the shower trailer. A 12 gauge electric cord for each circuit normally must be run to the power source. This allows for the shower unit to function somewhat even if there is only one 20 amp circuit source available. In warm weather, one 20 amp supply will operate the lights (not heat lamps) and wastewater pump but only one washer/dryer set can be operated. The power source circuit would be at its maximum capacity and will occasionally trip off. The power source supply should not be more than 75 feet away ideally. If a greater distance is involved, usage load must be carefully managed when using the washer/dryers. If 10 gauge power cords are available, that will extend the working distance by about 50-75%. 16 gauge power cords are acceptable if used for lights and the waste water pump only during warm weather. A portable generator with capacity of 4000 watts or greater can be used. Do not set it next to the trailer but rather out to the maximum distance the power cords will allow. This keeps the noise level down. Sounding shielding such as shrubbery, plywood, other buildings, etc. help. For security and prevention of theft, expect to disconnect and bring it inside at some locations. (This applies to all the equipment)

3. **Water Supply** - The water supply must be certified as safe by the local health department. Preferably, it will be an outside hose bib connection from a public or commercial building. If the water supply pressure in the area is low (35psi) and fluctuating lower, the location is probably not usable. If water pressure (45+psi) is adequate but low volume, that problem can be compensated for if usage amount is not great for more than a few minutes at a time. If water pressure is high (70+psi) or fluctuating high, the pressure regulator installed on pressure storage tank "A" is set for about 50-55psi and will compensate. When the water supply quality is questionable or has sediment, use the available water filters and change the filter cartridge as necessary.

When water supply is a great distance away and/or of restricted volume, it may be necessary to run more than one supply hose. Components are available in the parts box to connect hoses in parallel from the point of supply. Expect to do so with any combination of - "more than 100 feet away, pressure/volume is moderate or low, and/or washer/dryer or shower usage is frequent/heavy".

Some situations may require the water supply be from a tanker truck. This will require a pressure pump system to be set up which will also need more electric power. Ensure that the tanker water meets required chlorine level. Call in the local health inspector. *Note* a tanker truck was found to be contaminated with Salmonella during the 2005 Katrina response. It had not been cleaned well.

Some parts of this country have fire water mains separate from the domestic portable water supply systems. Be very cautious about using such a source. While the water might be certified as drinking quality, it may occasionally be very dingy and/or foul smelling. Additional filtration would be needed.

Shower Trailer Start up

With the location determined, position the trailer. Get it close to level side-to-side first by placing blocking under the wheels using the Pull Vehicle to back it up onto the blocking. **Chock the wheels tightly.** Now disconnect from the Pull Vehicle and "final level" the trailer front to back using the hitch jack stand. Once it is close to level side-to-side, it can then be "final leveled" using the leveling jacks. Place blocking under the leveling jack ground pads. Apply load to the leveling jacks* equally. DO NOT use the leveling jacks to lift the trailer any great amount. (*These are also known as stabilizer jacks)

The leveling Jacks are not intended for changing a wheel or bearing the full weight of the trailer. The hitch jack stand must also be bearing some weight.

With the trailer in position and properly leveled, continue startup as follows;

- a. Open all doors, remove and set the steps in place. There will be some equipment/material that needs to be removed first.
- b. Remove all other equipment and inspect everything for damage.
- c. Lay out all electrical cords, water hoses, and drain piping into position.
- d. Assemble the drain receiver tank and lay out piping on the side it will work best from. The shower room drains can be discharged from either side.
- e. Install the light bulbs. Use heat lamps in shower unit if weather is cool.
- f. Connect the electrical supply using as many cords as available service. There is a trap door in the floor for cords to pass through. Test operate the lights, waste water pump (if used), and exhaust blowers.
- g. Connect the water hose(s) to the water supply outlet and open. Allow the water to flush for a few minutes and then run some water into a clean container. Inspect the water for clarity and sediment. If the water looks good, tastes good, has no smell or sediment, okay. If not, flush the water supply a bit longer. If still some occasional sediment or discoloration then contact the local health department. If they certify that it is safe to drink, then install the filter system ahead of the pressure tank. Close the inside water valves.
- h. Close all pressure drains, shower and lavatory valves. Now open the inside main water supply valves. Purge air from the water heaters, faucets, and shower controls. Close the inside main water supply valves again. Observe the pressure gauge. If no pressure drop is observed, then the system should be okay to use. If the pressure drops off quickly. there is a leak somewhere. Find and fix (or isolate). Now open the inside water shutoff valves fully. Open all the lavatory and shower valves full. Check the operation of the waste water disposal system that it is working properly, then close the shower and lavatory valves.

- i. Once the water heaters, showers, lavatories, and waste disposal system are working satisfactorily, start up the washer/dryer sets if needed as follows:
 1. Install the laundry waste water drain to the drain receiver tank.
 2. Loosen the transport strapping. Check that the washer waste water discharge hoses are in proper position in the drains.
 3. Visually inspect the back side and beneath the washer/dryer sets for any possible damage or signs of previous leakage. Ensure that the water supply hoses are connected tight.
 4. With power to the washer/dryer, open the washer water supply valves. Check for leaks. Set the washer selector to wash cycle and start. It should begin filling. Observe behind and below for leaks. Allow the washer to go through all cycles; observe operation. If the washer operation is satisfactory, precede to startup the dryer following the posted instructions. After the first washer/dryer set check out okay then repeat on second set.

You should now be fully operational.

Install barricades as necessary to prevent any vehicle traffic from running over piping, hoses, and electrical cords. Drive over ramps will be needed in some situations.

Shower Trailer Shutdown

Location Move:

Short Move - When moving just a short distance such as repositioning due to avoiding a traffic bottleneck or other reason for convenience and efficiency of operation---it should not be necessary to drain the system. Just shut off all supply valves (gas and water), disconnect the gas and water, unplug the electrical cords, disconnect the drain system and move it out of the way. Reposition the trailer and set it up as instructed by "Startup" procedures.

Longer Move - a longer move refers to taking the trailer out into traffic and going some distance such as across town or perhaps several hours journey. If this can be accomplished in good weather and within a few days, it may not be necessary to drain the water piping. However, the trailer needs to be loaded and all equipment/materials secured as if for a long journey. **The washer/dryers and propane tanks must be strapped down.** Remove the water heater gas vents above trailer.

Going Home/Winterize

(see step "d" below)

- a) Clean the showers, shower rooms, and all equipment; Use a mild bleach solution in the showers and rinse well. This will also help to sanitize the drain system.
- b) Shut off the Propane tanks. As soon as the pilot lights in the water heaters go out; shut the propane gas main valves located just inside the trailer and below the water heaters. Also shut the gas stops to the water heaters and dryers. (Shut all the gas valves; they must remain closed until next time).
- c) Shut off the water supply at its source. Open all lavatory faucets and shower valves to bleed off all water pressure. Leave them open. Disconnect the long hoses and stretch them out in a sloping manner so that they will drain well.
- d) Open all drain valves beneath the trailer and the hot water side drain valves inside below each water heater, open the main water supply valves just inside the trailer beneath the water heaters. Release (raise) the leveling jacks. Now use the trailer hitch jack stand to raise the front end of the trailer about 8-12 inches to allow for drainage. After about 10-15 minutes lower back to level position.
- e) Set the washer control selector switches to warm water and tum on. This will allow some of the water in the supply hoses to the washers to drain. After a few minutes, tum the washer controls to off.

- a. If an air compressor is available, close the hot water drains located just below the water heaters and the six valves marked "shower room 1 & 2, 3 & 4, and 5 & 6". Pressurize the water piping to about 50 psi. then blow out each set of showers and faucets (1 & 2), 3 & 4), 5 & 6), briefly. The piping will need to be re-pressurized each time.
- b. After blowing out the shower room piping, close the shower room valves then re-pressurize and blow out the water heaters in reverse by opening the main water shut-off valves. Do not use a rapid discharge with the water heaters. There are water flow sensors that could be damaged. Now close all valves, except the washer supply valves, pressurize again and blow out the washer water hoses by cycling the selector controls. After this is accomplished, open all shower controls, lavatory faucets, and drain valves again. Leave open. Pour a cupful of RV anti-freeze in each lavatory. Leave the caps off of the outside water connections until arrival home. Driver carry them in pocket.
- c. Winterize the washers by pouring 1 gallon of RV anti-freeze in each. Start the washers at the beginning of the spin cycle when the water pump will pump out the RV anti-freeze-water mixture. After the washer stops, add ½ gallon RV anti-freeze.
Use the supplied tie-down strap to secure the washer/dryers for transport.
- d. Coil the long water hoses neatly into the storage barrel provided. Then if possible, connect the hose ends together to prevent damage or contamination. If not able to connect together, put tape over each hose end. Store the water filters, spare filter cartridges, and water hose spare/repair parts in a suitable container. Once all the water supply hoses are in the barrel, it will now be used for other equipment/material storage.
- e. Disassemble the waste water drain disposal system starting at the highest point. Remove the rubber fittings from the piping. If possible, set all the pipes in a slanting or near vertical position to drain and dry. Drain and clean all the parts as well as practical and allow to dry. Place rubber caps over the drain openings under the trailer. Place the pump, rubber fittings, and other drain system components that will fit, inside the Drain receiver tank. Place the small diameter (1 ½ inch) pipe inside the (2 inch) pipe. Store the 2" (with 1 ½" inside) in the corner between the water heaters. Secure with bungee cord. Do not place any drain system components in the barrel for fresh water hose. All drain system components must be stored as shown on the Master Load Plan Diagram.
- f. Coil the electrical cords into the water hose storage barrel. Connect the cords together as you place them in the barrel. Remove all light bulbs; wrap them securely inside "tube socks" and place in sink. Place heat lamps in a separate box.

- n) Store all equipment and materials as shown on the Master load plan. **When loading the equipment/materials, inspect it carefully for stowaways.(mice, insects, rats, etc.)**
- o) Double check that all storage items are secure and will not move around during transport.
- p) Secure all doors with locks.
- q) Raise the leveling jacks to the travel/stored position. Snug tighten them. Hook up to the tow vehicle. Connect the trailer wiring, test all lights, remove the wheel chocks, test the trailer brakes, place the wheel chocks and any wheel blocking in the tow vehicle. If it is necessary to park and disconnect the trailer, the wheel chocks are now handy. Don't forget the ratcheting box wrench!!!!

Head for home (or next destination) with the shower trailer.

Master Load Plan
MBC Shower Trailer
Front End of Trailer

#1

Two towel totes in shower stall steps secured to towel bar with bungee cord. Light bulb in sock in sink. Long boards on floor. Milk crate of boards. Black tool box on floor.

#2

Two towel totes in shower stall. Steps secured to towel bar with bungee cord. Light bulb in sock in sink. Pumps against steps. Step stool misc. supplies.

#3

Two bath mat totes in shower stall. Individual supplies by totes. Steps secured to towel with bungee cord. Light bulb in sock in sink. Bath mat tote. Three buckets of pipe connectors. Two fans. Other totes.

#4

Shampoo tote and towel tote in shower stall. Light bulb in sock in sink. Steps secured to towel bar with bungee cord. Two spare tires with VALVE STEMS UP. Creeper. Canvas folding chairs.

#5

Two totes in shower stall. Steps secured to towel bar with bungee cord. Light bulb in sock in sink. Lay rubber mat on floor. Alternate with folding chairs. Place canopy frame on top of chairs. Black drainage box.

#6

Totes in shower stall. Light bulb in sock in sink. Steps secured to towel bar with bungee cord. Propane box. Trash cans, buckets, laundry baskets, misc totes.

Mechanical Room

Strap down washers/dryers. Load drain pipes into corner between water heaters and secure. Coil water hoses into barrel. Coil electrical cords into barrel. Load steps. Tables between washers and steps. Close doors. Attach pad locks.