

# **Owner's Manual for Bethlehem Equipment Company Septic Tank Delivery Rigs**

Safe and proper operation of a septic delivery rig is similar to learning to drive a car for the first time. All the manuals, videos, and verbal instruction in the world will only give the general ideas, methods, and rules of operation. As in learning to drive, actual hands-on operation, under the instruction of a licensed, experienced operator over a period of time, will give a trainee the degree of proficiency to go solo.

Just like in driving the instructor should stress a constant awareness and alertness for hazards by looking, listening, and feel at all times.

## **Pre-Operation Safety and Equipment Check**

As with all machinery, a pre-operational safety check must be made. With the septic tank delivery rig, the operator first looks around and under rig platform or bed.

- 1) Check for any cracks, loose or missing bolts, low hanging hydraulic hoses, or leaks.
- 2) Check control linkage connections and freedom of movement, make sure control lever lock is securely applied after inspection.
- 3) Check A-Frames and boom assemblies for cracks, loose or missing bolts.
- 4) Check Cable and Drop Block for any fraying, kinks, bends or excessive wear. Make sure cable is always wound up on winch drawn tight and level at all times.
- 5) Select and inspect proper spreader bar and chain for load to be moved (refer to proper sling selection section attached.)

## **Operation Start-Up**

Properly park truck, not to exceed at a 15° angle, apply parking brakes, scotch and tie down if necessary. Warning: Exceeding a 15° angle while operating the bed can result in a hydraulic override on the system design capacity and a possible run away incident. All hookup attachments are for vertical lift only. No lateral lift or pulling at any degree allowed.

- 1) Double check control lever lock is properly applied.
- 2) Follow P.T.O. manufacturers operational manual attached.
- 3) With P.T.O. engaged, hydraulic system is active, listen for only differing or unusual noises. Feel for any excessive vibration, look for leaks. Do not operate P.T.O. over 1,000 R.P.M.
  - a. Unlock control levers. Check cable for smooth, free movement. Outer lever controls winch, move lever forward to raise load, return to center to stop, move rearward to lower load, return to center to stop. Never shift direct from one direction to opposite without stopping center first.
  - b. Check trolley for smooth and free movement. Inside lever controls trolley, move lever forward to carry load to front of bed, return to center to stop, move lever rearward to carry load to back of bed, return to center to stop. Never shift direct from one direction to opposite without stopping in center.
- 4) Beds equipped with hydraulic outrigger stabilizer control levers have separate control valves. Individual inspection of this system is also required, inspect for damage, leaks, and proper and smooth operation. Check for full and free up and down movement of outriggers mechanical components as well as smooth and noise free hydraulic operation. Outrigger stabilizers are used to level truck and keep front from tipping up not over when loading and unloading heavy loads. Do not use stabilizer to shift load behind back A-Frame. Hydraulic pressure setting adjustment and filter replacement are required a minimum annually or immediately upon a noticeable system change during operation, any repairs, maintenance, or fluid changes. With all systems operational, proper spreader bar and chain attached, you are now ready to load and go.

## HYDRAULIC BED RATING SPECIFICATIONS

<i>WINCH SIZE</i>	10,000 lbs	12,000 lbs	15,000 lbs	20,000 lbs
<b>Hydraulic Fluid</b>	12 Gal. Exxon NUTO-H-32	12 Gal. Exxon NUTO-H-32	12 Gal. Exxon NUTO-H-32	20 Gal. Exxon NUTO-H-32
<b>Grease</b>	Monthly or More Often	Monthly or More Often	Monthly or More Often	Monthly or More Often
<b>Filters</b>	500 Hour NAPA 1551	500 Hour NAPA 1551	500 Hour NAPA 1551	500 Hour NAPA 1551
<b>Winch Oil</b>	140 Weight No Multi Grade	140 Weight No Multi Grade	140 Weight No Multi Grade	140 Weight No Multi Grade
<b>Trolley Pressure</b>	900 psi	900 psi	900 psi	900 psi
<b>Winch Pressure</b>	1100 psi	1100 psi	1100 psi	1100 psi
<b>Cable Sizes</b>	1/2" 6 x 36	1/2" 6 x 36	9/16" 6 x 36	5/8" 6 x 36

## CABLE LENGTH IN RELATION TO BED WITH 10' OVERHANG

<i>BED FEET</i>	14'	16'	18'	20'	24'
<b>Cable Length</b>	85 FT x 1/2 80 FT x 9/16	95 FT x 1/2 90 FT x 9/16	100 FT x 1/2 95 FT x 9/16	110 FT x 1/2 100 FT x 9/16	120 FT x 1/2 110 FT x 9/16

**Note:** Adjust feet for varying overhangs

## **PRE-TRIP SAFETY AND MAINTENANCE CHECKS**

Daily, weekly, and monthly pre-trip and maintenance checks for Bethlehem Equipment Company, Inc. built mechanical and hydraulic operated, fixed boom septic tank delivery rigs.

Because of the nature of septic tank delivery to a job site can consist of a more or less off-road condition with very unlevelled terrain, mud, fill dirt, stump holes, ditches, terraces, brush, trees, pulling and or pushing truck into position and on very steep slopes anchoring tank truck to another piece of heavy equipment, such as a track loader to protect against rollover. It is imperative, that, the operator, maintain a constant vigilance to safe equipment operation and equipment maintenance. Even the newest updated equipment, without normal wear, stress, fatigue and poor maintenance is no safer or works any better than operators properly trained in use of equipment loading and unloading septic tanks with attention on proper sling selection and application.

Spreader bar and lifting chain, along with winch cable can be the most abused components of a septic tank delivery rig. These need the most attention given to their safe working condition.

Sling and winch cable should be visually inspected before and after each loading and unloading procedure and continually monitored during operation for any sign of slippage, binding or unusual positioning in movement.

Always select correct weight capacity and length of lift bar along with correct size and length of alloy chain for unit to be handled.

OSHA 1910:184 standard for chain slings now requires that all component linkages in any sling assembly, as well as hooks, rings and other welded or mechanical coupling devices have a load capacity equal to or greater than the basic chain used. By the same standard, if an attachment with a lower capacity than that of the chain must be used, the entire assembly must be rated on the basis of the strength of that attachment, or the weakest component. However, custom mechanical devices, which are certified by the manufacturer, can be used according to the manufacturer recommendations.

Present manufacturing standards for alloy steel chain require that it be tested in direct tension with a loading twice that of its rated capacity. It is essential to note that this safety allowance is not built into the chain as an invitation to overload. It is rather a measure of assurance, by test of the integrity of the welded link and a reasonable compensation for normal wear and other possible forms of deterioration, which will begin to take place after the chain is put into use. Chain assemblies should never be loaded beyond their rated capacity.

The most important and perhaps most demanding of the OSHA requirements, is concerns in the inspection of the chain slings. Slings are to be visually checked each time they are applied to the load to be lifted. The purpose of this practice is to insure that all twists kinks and other flaws in the rigging arrangements are eliminated before tension is applied. In addition OSHA requires a thorough periodic inspection of all chain slings. The Law States: Such inspections shall in no event be at intervals greater than once every twelve – (12) months. Records of these inspections must be available to OSHA inspectors upon request.

One of the great safety innovations in sling chain production is the attachment of permanent identifying tags to each chain assembly. The I.D. tags, now required by OSHA are stamped with the grade of chain, size, rated capacity, and reach.

Reconditioned sling assemblies must be proof-tested by the manufacturer as if they were new products.

Neither mandatory nor volunteer safety programs can work effectively unless the objectives of the program are explained to the people involved. This means that all persons using chain slings must be uniformly instructed in safe practices.

Workers should be thoroughly instructed in basic sling safety practices such as those listed in the accompanying box.

### **RULES OF SAFE PRACTICE FOR CHAIN SLINGS**

01. Use the proper sling. The weight of loads to be lifted must be known or carefully estimated so that a sling of adequate capacity can be chosen. 80 percent of sling chain damage occurs through overloading. Identification tags give the load rating with respect to the lifting angle of the sling legs. However, keep in mind that sling capacity decreases as the horizontal angle of the sling legs is reduced. A 60-degree angle is considered to be the normal horizontal working angle for legs of a multiple leg sling.
02. Examine the chain sling visually in its rigged state before tension is applied. There could be problems if the slings have not been stored properly between periods of use. Such damage is usually visible.
03. Hitch chains securely, positioning master rings and hooks so that they support the load at their bearing points. Failure to satisfy this requirement can result in slippage, shock loading, and abnormal wear of parts.
04. Protect chain surfaces from contacting sharp corners, which can cause permanent damage through gouging or abnormal stress and wear.
05. Avoid the use of chain attachments that have not been proof tested and W. L. L. established.
06. Remove all twists or kinks from chain before attempting a lift.
07. Never shorten chains with a chain knot. Manufacturers offer a variety of sling arrangements, which can be adjusted for the desired reach.
08. Take up chain slack slowly in lifting, and do not bounce or jerk the load.
09. Always stand clear of loads while they are being lifted.
10. Balance the load before lifting to prevent slipping or shifting. Make sure sling legs are adjusted for balanced support before lifting. A trial tensioning of the sling will usually indicate whether or not the load is in balance.

I, \_\_\_\_\_ (owner), of \_\_\_\_\_ (purchaser's company name), am proficient in the operation of Bethlehem Equipment, Inc.'s septic tank delivery rigs and fully accept responsibility for all training, including but not limited to, pre-trip safety checks, operational safety, service and maintenance schedules, and their implementation.

I have received and read the owner's manual and suggested maintenance and safety check schedules. I have received instruction on proper operational use of septic tank delivery rigs. I understand the operational safety guidelines set forth in the owner's manual.

I understand and accept the responsibility as owner to establish and maintain supervision of all personnel in all areas of septic tank delivery rig use and service.

I also am aware that if any Bethlehem Equipment, Inc. septic tank delivery rig is involved in any accident or sudden impact, for whatever reason, the rig must be inspected by Bethlehem Equipment, Inc. personnel immediately before further use of rig.

Examples:     Traffic accident  
                  Overturned on job site  
                  Reared-up and dropped  
                  Heavy overhead contact of a boom with trees, bridges, or other equipment

All Bethlehem Equipment, Inc. septic tank delivery rigs should be returned to factory every ten (10) years or 40,000 hours for complete inspection and overhaul if necessary.

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(Signature)

GREASE FITTING LOCATION

