

Type: Bulker

Model:

Serial Number:

Owner's Manual for

Strong Manufacturing Company

Bulker Model Mark IV

Preface

The Bulker, Mark IV, has been designed to increase profits by increasing your production and lowering your material and labor cost.

The basic idea was to design a machine that would add the capacity of bulk handling cement to work in conjunction with the DeckMate roof deck machine. The bulker will hold 900 cubic feet of cement at the jobsite.

Note: The Strong MFG. Bulker is not designed for road transportation of such loads.

We are confident that your new bulker will increase profits...but the life and service received from this piece of equipment will depend entirely upon the care and attention given it during daily and routine use.

In order to help with the proper servicing and care of the machine, the operation and maintenance manuals from the various suppliers of components are included. These should be carefully read and followed by those who will be responsible for the maintenance and of the machine. Other pertinent information is given in the following pages to insure the best performance of the machine.

It should be remembered that the nature of your business, that is, the mixing and pumping of cement, lightweight insulating aggregates, water and admixtures, creates the most severe conditions under which machinery must operate. It was with these conditions in mind that the selection and design of the various components were made.

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Safety

The following Safety Section should be read carefully by anyone associated with the operation or maintenance of the machine.

Additional copies of the Safety Section may be obtained from Strong Mfg. free of charge. Additional manuals can be obtained from Strong Mfg. for nominal fee.

A. General Safety

Strong Manufacturing Strongly urges the customer to adopt the following rules when operating this piece of equipment. Adherence to these safety rules can help prevent damage to equipment and injury to bystanders and employees.

1. Be sure guards are installed properly, never remove a guard for convenience sake. The manufacturer would not have installed them if they were not necessary.
2. Never run the machine without the auger covers installed. Failure to do so not only is a safety hazard, but the danger of foreign objects falling into the auger exists which will cause extensive and costly damage.
3. Never make adjustments or repairs when the machine is running.
4. Never set the bulker up without the timbers under the landing gear. Be sure that landing gear is centered on the timbers provided. If at all possible, leave the tractor under the bulker.
5. Do not drop bulker on uneven ground because unit can turn over.
6. Never operate the hydraulic system in excess of 1750 PSI.
7. Never pressurize bulker tank (do not exceed 1 PSI internal pressure). Make sure when filling that vent pipes are clear of any obstructions. Pressurizing the tank will cause structural damage and void manufacturer's warranty.
8. Stand clear of bulker at all times. Most certainly when tractor is connecting to or being removed from bulker as movement of bulker will occur. Failure to do so could cause personal injury such as cuts, bruises, broken limbs or even death as a result of being hit by bulker.

9. Do Not reach inside auger discharge. If necessary to do so, turn off power supply, then disconnect hydraulic hoses from power supply. Failure to do so could cause personal injury such as cuts, bruises, broken limbs or even death caused by body members becoming entangled in discharge auger should someone engage auger control valve.
10. Do Not enter the bulker without first disconnecting hydraulic hoses from power supply. Failure to do so could cause personal injury such as cuts, bruises, broken limbs or even death caused by body members becoming entangled in discharge auger should someone engage auger control valve. If necessary to enter bulker, open both hatch covers and wear dust mask and eye protection. Have a second person stationed on top of bulker as a safety precaution should help be needed as well as to warn others that someone is inside bulker.
11. Do Not remove access doors without first disconnecting hydraulic hoses from power supply. Failure to do so could cause personal injury such as cuts, bruises, broken limbs or even death caused by body members becoming entangled in discharge auger should someone engage auger control valve. Materials will flow freely when access door is removed. Be sure to wear respirator, eye protection and protective clothing as materials may irritate skin and eyes and could even cause loss of sight. Use caution when removing access doors. The outward flow of material may cause access to strike personnel causing injury such as broken limbs or even death.

B. Hydraulics

1. Always check to see that hydraulic valves are in neutral or OFF position prior to starting power supply.
2. Never disconnect a hydraulic line with power supply running. When working on hydraulics, shut off power supply. Never reset hydraulic relief valve to a setting above 1750 PSI, or the setting that the machine was adjusted to when received.
3. Inspect hoses regularly for wear. Replace if breaks, tears or soft spots appear.
4. Replace with hoses designed to operate at or above 2000 PSI pressure.
5. When working on hydraulics, use only a qualified hydraulic mechanic.

6. Always replace components with same, or equal manufactured products as originally provided with equipment.
7. Keep hydraulic oil off hot parts such as engine exhaust as the oil will ignite at high temperatures.

Caution

Failure to observe the above warning can result in severe bodily injury, including eye injury, burns, loss of sight or limbs and possible death.

C. Machinery

1. Read all WARNING and CAUTION signs before operating machine.
2. Never remove guards with motor or engine running. Turn ignition off at power source, remove engine key, tag and disconnect all hydraulic hoses from the bulker when necessary to remove guards, or work on machine.
3. Never operate machine with worn or loose parts or parts needing adjustments.
4. Make sure all guards are in place before starting power supply.
5. Never operate equipment with excessive load. Hydraulic components should not be run at continuous pressures above 1500 PSI for any length of time.
6. Have all personnel wear safety glasses, dust mask, goggles and gloves as cement dust can irritate.
7. Keep empty bags out of area to prevent fire hazard.
8. Loose clothing should not be worn by operator, or by anyone working on, or around machine.

Caution

Failure to observe the above warning can result in severe bodily injury, including eye injury, burns, loss of sight or limbs and possible death.

D. Cleaning, Repairing, Servicing and Adjusting Prime Movers, Machinery & Equipment

Section 3314 – General Industry Safety Orders

Machinery or equipment capable of movement shall be stopped and the power source de-energized or disengaged and, if necessary, the movable parts shall be mechanically blocked or locked to prevent inadvertent movement during cleaning, servicing, or adjusting operations unless the machinery or equipment must be capable of movement during this period in order to perform the specific task. If so, the EMPLOYER shall minimize the hazard of movement by providing and requiring the use of extension tools (e.g., extended swabs, brushes, scrappers) or other methods or means to protect employees from injury due to such movement. Employees shall be made familiar with the safe use and maintenance of such tools by thorough training.

E. Screw Conveyor (Auger)

Most accidents are usually the result of carelessness. In order to avoid an unsafe or hazardous condition, the conveyor assemblies, or parts must be installed with the following minimum provisions.

1. Screw conveyors shall not be operated unless the conveyor housing completely encloses the conveyor moving elements and power transmission guards are in place. If the conveyor is to be opened for inspection, cleaning, or observation, the motor driving the conveyor is to be locked out in such a manner that it cannot be restarted by anyone, however remote from the area (unless the conveyor housing has been closed, and all other guard are in place). (Disconnect hydraulic hose from power supply).
2. If the conveyor must have an open housing as a condition of its use and application, the entire conveyor is then to be enclosed such as with the bulker body.
3. Do not walk on conveyor covers or grating or power transmission guards.
4. Do not poke or prod material in the conveyor with a bar or stick.
5. Do not place hands or feet in any conveyor opening.
6. Do not overload conveyor or use for anything but its intended use.
7. Practice good housekeeping.

Operational Procedure

A. Machine Set-Up

The following procedure should be followed in setting up the bulker.

1. Have an experienced tractor-trailer driver position the bulker discharge of the DeckMate cement hopper.
2. Remove timbers from the front deck and place under landing gear. Crank the landing gear down to take the load off of the tractor. Never set bulker up without the timbers under the landing gear. Make sure the gears are on the timbers and that they stay level. If at all possible, leave the tractor underneath bulker.
3. Suspend cement hopper from tension cell hanger Part #4 on drawing #24100001, making sure bulker discharge is inside cement hopper.
4. Connect the hydraulic hose from the DeckMate the bulker as shown in drawing #86000091. There will be three (3) hoses that need to be connected, two-3/4 hoses and one-3/8 hose.
5. Filling Bulker Mark IV with cement – The bulker has been provided with a fill pipe. This enables the user to fill the bulker on the jobsite from a pneumatic truck that is equipped with a blower. To fill the bulker with cement: Reference drawing #2400001.
 - a. Remove cap from one end of the cement fill pipe.
 - b. Connect hose from bulk cement truck to fill pipe.

The bulker is now ready to be filled with cement. Have the bulk cement truck operator fill the bulker with cement making sure that the tank pressure does not exceed 1 PSI. When bulker is full, go back through the three preceding steps. Be sure that all caps and hatches are properly in place and secured so water cannot get in the bulker.

B. Basic Operation

The bulker is operated by a control valves supplied on a properly equipped Strong Manufacturing DeckMate or other power source. This valve engages the hydraulic motor mounted on the auger drive of the bulker. This turns the screw discharging the material into the cement hopper. The DeckMate operator has full control of the bulker. There is no need for additional help in the operation of the bulker.

Maintenance

The maintenance for the Bulker, Mark IV, is relatively simple. Keeping checks on the few items mentioned will help the machine give you a long productive life.

Keep a check on the gaskets sealing the doors and covers of the tank. It is very important that the tank is kept leak free. If the tank leaks, water will get inside the tank causing the cement to set. Visually check all gaskets on doors and covers for tears or worn spots. To check the bulker for leaks, someone will need to get inside the tank with all hatches closed and look for light shining through where light is seen a leak will occur. These should be marked and properly sealed.

Caution

Make sure all power is off to bulker before someone goes inside tank, i.e. make sure hydraulic hoses are disconnected and inspector has keys to power supply in his/her pocket before entering bulker.

Maintenance

If it is necessary to enter the bulker to make repairs, please observe the following:

Danger

Do Not enter the bulker without first disconnecting hydraulic hoses from power supply. Failure to do so could cause personal injury such as cuts, bruises, broken limbs or even death caused by body members becoming entangled in discharge auger should someone engage auger control valve.

If necessary to enter bulker, open both hatch covers and wear dust mask and eye protection. Have a second person stationed on top of bulker as a safety precaution should help be needed, as well as, to warn others that someone is inside bulker.

All hanger bearings are accessible through the two access doors of the left side of the bulker facing the rear section. With bulker empty the covers can be removed to replace bearings or coupling shafts without having to enter the bulker.

Caution

Do not remove access doors without first disconnecting hydraulic hoses from power supply. Failure to do so could cause personal injury such as cuts, bruises, broken limbs or even death caused by body members becoming entangled in discharge auger should someone engage auger control valve.

Maintenance

Material will free flow when access door is removed. Be sure to wear respirator, eye protection and protective clothing as materials may irritate skin and eyes and could even cause loss of sight.

Take caution when removing access doors as materials inside bulker will rush out while doors are being removed, apply a sudden load onto the doors which could possibly strike someone causing personal injury such as cuts, bruises, broken limbs or even death.

Keep a periodic check of brake line and air lines replacing all worn or damaged lines. (Check the fluid level in the gear reducer mounted on the front of the auger at least once a month). Keep the fluid level in gear reducer at recommended levels per manufacturer's literature.

The flange bearings mounted at each end of the bulker require additional lubrication every 150 hours of operation. One shot of good all-purpose grease is adequate for bearing lubrication.

Trouble Shooting

Problem: Auger will not turn and excessive hydraulic pressure.

Probable Cause	How to determine	Solution
Quick couplers not connected properly.	Check quick coupler connection.	Re-connect couplers making sure proper connection is made.
Foreign matter inside hydraulic hose blocking oil flow.	Take quick couplers loose from hose and check for foreign material on back side.	Clean out coupler and put back on hose.
Cement set-up inside auger.	Take quick couplers loose from hose and check for foreign material on back side.	Clean out the cement found – also locate and fix the leak that allowed the water to enter the tank.
Carrier bearing failure.	Remove side plate and inspect bearing for wear.	If bearing shows signs of excessive wear, replace.
Hydraulic motor locks up with blockage.	Check motor for damage.	Replace motor or have rebuilt.
Hydraulic valve blockage.	Check valve for restriction.	Repair valve or replace.

Trouble Shooting

Problem: Auger will not turn, no change hydraulic pressure.

Probable Cause	How to determine	Solution
Hydraulic motor gears worn out.	Check motor for worn gears.	Replace or rebuild hydraulic motor.
Hydraulic relief valve by-passing.	Change relief valve setting.	If no change in pressure, replace relief valve.
Auger shaft broke.	Gear reducer running and auger not turning.	Find broken shaft and replace.

Problem: Auger slow down.

Probable Cause	How to determine	Solution
DeckMate not at running speed.	Check RPM of DeckMate.	Set RPM DeckMate at proper RPM.
Hydraulic pump.	Has other operation on DeckMate slowed down.	Replace or rebuild hydraulic motor on DeckMate.
Hydraulic motor wear.	If hydraulic pump is okay check hydraulic motor for wear.	Replace or rebuild hydraulic motor.
Carrier bearing starting to fail.	Hydraulic pressure turning higher than normal during normal running check for wear on carrier bearing.	Replace bearings.
Set-up material in auger.	Hydraulic pressure running higher than normal during normal and chunks of set-up cement seen in cement hopper.	Check tank for big chunks of set-up concrete and remove. Locate leak and repair.