

# SAFETY, OPERATION, MAINTENANCE, & PARTS MANUAL

## MC350 Curbilder™



# **This manual is for the Miller MC350 Curbilder**

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## **SPARK ARRESTER SERVICE**

Your engine is not factory-equipped with a spark arrester. In some areas, it is illegal to operate an engine without a spark arrester. Check local laws and regulations. A spark arrester is available from authorized Honda dealers.

# SAFETY

The  symbol applies to all items in the Safety section unless otherwise noted.

These safety and operating instructions for Miller Spreader curbing equipment are for your protection. Careless regard of these instructions and other construction practices could result in accidents and injury

## A. General Safety

- Replace damaged or worn decals.
- Replace damaged or worn decals only with original equipment decals. Do not modify decals in any way.



All repairs to this machine must be made by a qualified service mechanic using only MILLER SPREADER replacement parts or their approved equal. Any deviation from the original MILLER SPREADER supplied machine in the operation, repair, and/or modifications of the machine without the express written consent of the MILLER SPREADER COMPANY, voids all machine warranties and any liability for injuries and/or damage to person or property.

## B. Before putting this equipment into operation inspect the equipment daily.

- Inspect this equipment on a hard and level surface.
  1. Shut engine off.
  2. Disconnect spark plug wire to prevent accidental starts.
  3. Block wheels in both directions to prevent machine movement.
  4. Inspect belt tension/chain tension. Adjust if required.
  5. Inspect auger for wear. Repair or replace if required.
  6. Inspect tires, wheels and tire pressure on pneumatic tire models. Air pressure should be 50 PSI.
  7. Inspect all operating controls: speed control linkage, steering handle, and wheel height adjustment for proper operation, cleanliness, and adjustment.
  8. Inspect engine oil level.
  9. Before adding fuel
    - Shut engine off.
    - Let engine cool off a minimum of 5 minutes
    - Extinguish smoking materials
    - Use funnel
    - Do not overfill
  10. Replace fuel cap after adding fuel.
  11. A hot engine may ignite spilled gasoline.
  12. Exercise extreme caution when refueling.



- Make any necessary repairs or adjustments before putting this equipment into operation All repairs must be made by qualified service personnel. ALL GUARDS

- MUST BE IN PLACE AND FUNCTIONAL. Refer to the Maintenance and Machine Adjustments sections of this manual.

**C. Familiarize yourself with the work site and job conditions prior to using the Curbilder.**



This equipment must only be operated by trained personnel who fully understand its safe operation. Each operator must be able to identify any unsafe worksite conditions and report these conditions to his supervisor for immediate correction.

- Do not start or operate this equipment in an unventilated area. A gasoline engine discharges carbon monoxide gas which causes INJURY or DEATH if inhaled.



A GASOLINE ENGINE DISCHARGES CARBON MONOXIDE GAS WHICH CAUSES DEATH IF INHALED. ENGINE EXHAUST AND SOME OF ITS CONSTITUENTES ARE KNOWN TO CAUSE CANCER, BIRTH DEFECTS AND OTHER REPRODUCTIVE HARM. DO NOT OPERATE THIS MACHINE IN A BUILDING OR OTHER AREA WHERE THERE IS NOT ADEQUATE VENTILATION FOR THE OPERATOR.

- Do not operate this equipment on unsafe surfaces. This equipment is intended for use only on leveled and compacted surfaces. AVOID ANY CONDITIONS OF SLOPE AND/OR GRADE WHICH MAY CAUSE THIS EQUIPMENT TO TIP.
  1. Verify that all surfaces will support safely the maximum load of the machine with the payload
  2. All surfaces must have suitable surface for good footing for the operator.
  3. Wet, muddy and/or loose surfaces may cause an operator to lose his/her footing and fall.
  4. Identify all unprotected openings on jobsite and do not operate this equipment near these openings.
  5. Identify all overhead structures, electrical wires, and door openings on the jobsite. Be sure the equipment will safely pass through and under.
  6. Identify the load requirements for the jobsite. Do not exceed the load limits in weight as shown on the following chart. Under all operating conditions the operator is solely responsible for a safe and secure load. If jobsite conditions so warrant, reduce load.

SAFETY & OPERATION SPECIFICATION CHART FOR MILLER SPREADER MC350 CURBILDER		
MAX VEHICLE GVW	TIRE PRESSURE	
	FRONT	REAR
330LBS	50 PSI	50 PSI

**D. Operation of this equipment**



Use caution when operating near other people and obstructions. Always look to the rear before backing up and back up slowly.



Never feed plunger with a tool that could get caught in the plunger and strike someone.

- Use caution when operating near other personnel and obstructions. Always look to the rear before backing up and back up slowly.
- This vehicle is not intended for the transportation of any personnel. NO RIDERS!
- Do not operate equipment with oily dirty gloves and/or controls.
- Do not operate recklessly. Careless operation causes accidents and injury.
- If operator must leave operator's station (standing at the steering handle) he must
  1. Stop equipment
  2. Block wheels
  3. Shut off engine by turning engine ignition switch off or depressing the emergency stop button on the console.
- This equipment is not intended to tow other items or equipment.
- Refer to "Lifting and Tie down Instructions" section of this manual. Note the appropriate lifting and tie down points, and the specific load ratings for chains, straps, and forklifts.
- Avoid all operating conditions where you, the operator, and/or other people may become trapped or pinched between the Curbilder and some other obstacle or where a Curber lifted by a crane etc. may fall on you.
- A Curbilder cannot be operated in areas with flammable or explosive atmospheres. Refer to code of Federal Regulations (OSHA.) 29 CFR Part 1910.178 to determine permissible areas where these curbers may be operated.



Keep hands clear of auger during operation of curber. Rotating auger contact can cause injury or death. Keep away!

# Lifting, Tie down, and Transportation Instructions



All chains/straps must pull away from and to the front and rear as shown below.



Do not lift Curbilder with forklift or damage to Curbilder and/or bystanders may result.

## A. To tie curber down to the trailer bed, etc (Note: empty curber weighs 190#)

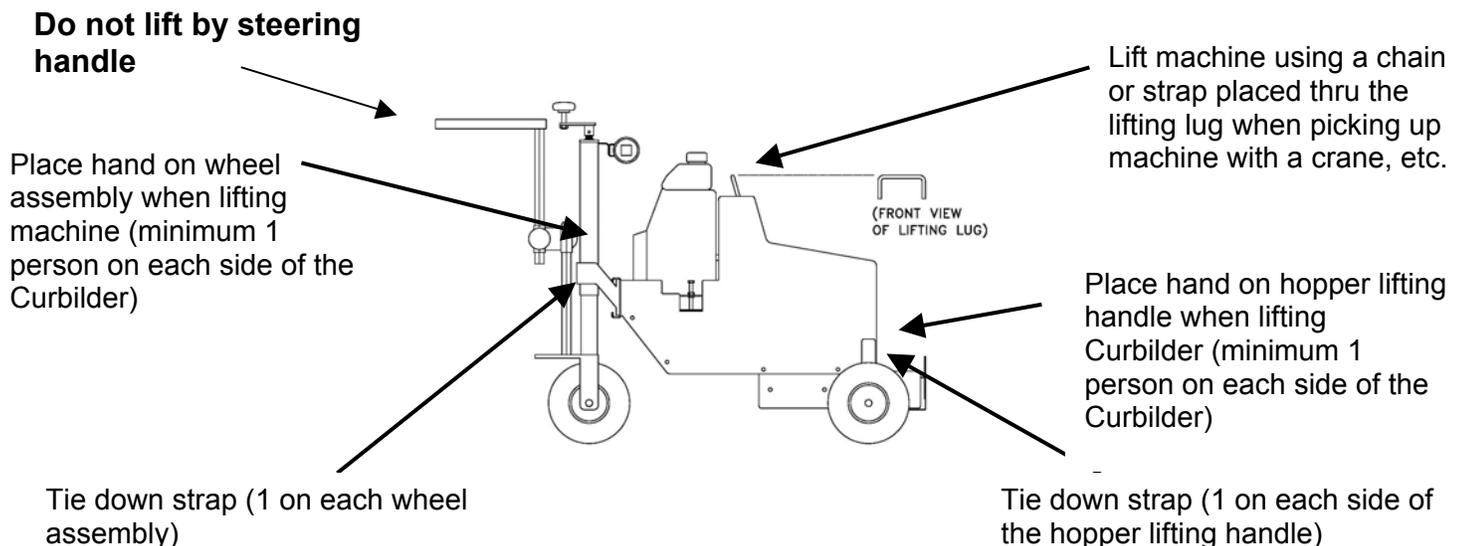
- Empty hopper
- Chock all wheels
- Secure Curbilder to trailer bed using 4 chains or straps as follows:
  1. 1 on the hopper handle on each side as shown below
  2. 1 on each front wheel assembly as shown below
- All chains/straps must pull away and to the front and rear as shown

## B. To lift Curbilder

- When lifting Curbilder with a crane or other mechanical hoist
  1. Empty hopper.
  2. Position the chain/strap through the Lifting Lug as shown below.
- When lifting Curbilder without a crane or other mechanical hoist always use 2 or more people to lift the Curbilder.
  1. 1 person stands on each side of the machine.
  2. Use the hopper lifting handle and the front wheel assembly to lift the machine.
  3. Be sure to bend at the knees when lifting.



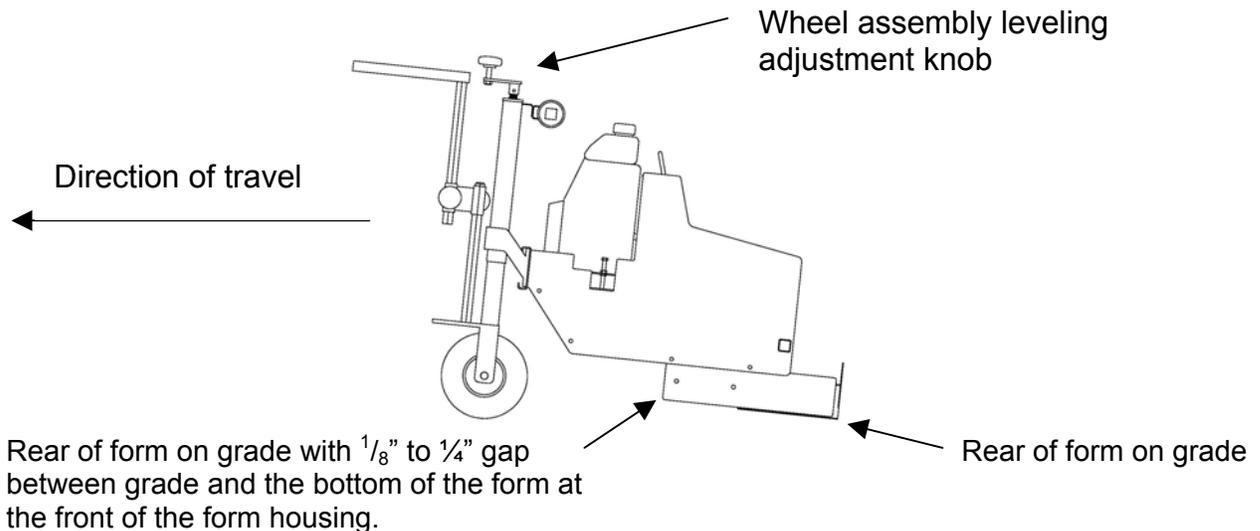
Use OSHA approved lifting/tie down chains and straps that are designed to have a minimum working load limit of 1320# per chain or strap. Lift or tie down Curbilder only when hopper is empty. Only transport Curbilder with engine off. Turn fuel switch to off position to prevent fuel from entering crankcase.



# Curbilder™ Operating Instructions

## A. Preparing machine for operation

- Spray with water when extruding concrete curb.
- Position the Curbilder so that the curb form is in the proper location to begin extrusion.
- Adjust front wheel assembly horizontally to meet jobsite conditions. Remove rear wheel assembly so the discharge (rear) end of curb form touches the surface on which the curb will be laid. Adjust front wheel assemblies vertically to lift flange (front) end of curb form 1/8" above the base course. (Rear discharge end of curb form will touch base, front flanged end of curb form will not.)
- Each front wheel assembly can be adjusted to level the machine if so desired.
- When extruding concrete curb on top of concrete, lay a concrete epoxy for joining concrete to concrete ahead of Curbilder in path of curb form.



## B. Curbilder™ is now in position to extrude curb

- Start engine and idle until warm. When ready to curb, increase engine rpm as needed for optimum speed for the jobsite conditions.
- Shovel concrete into hopper, making sure that one can always see the plunger. If the plunger can't be seen, there is too much material in the hopper and the machine will not move.
- As material nears the discharge end of the curb form, block the opening in order that the material will be compacted. (A piece of wood or a shovel work well.)
- Curbilder starts forward as material is extruded through the curb form. THE FORCE OF EXTRUSION PROVIDES PROPELLING POWER.
- After Curbilder moves forward, the curb may be struck off with a shovel at the desired starting point. (This excess material may be reused in the Curbilder) If

advanced start is not possible, starting end of curb may be hand shaped with finishing trowel.

- Fill hopper steadily and steer Curbilder to ensure curb is placed where desired.

### **C. General considerations**

- Optimum compaction has been designed into the Curbilder and the curb form. Greater compaction will be obtained when the machine is operating uphill, or by raising the front wheel assemblies, transferring weight to the curb form. Lowering the front wheel assemblies decreases compaction by decreasing the weight carried on the curb form.
- Never allow material to stand in the hopper when the Curbilder is not in operation.
- At the end of a run, cut off curb with a shovel and finish with hand trowel as required.

## **Curb Mix Information**

There are two (2) basic material formulas for decorative curbing. The most commonly used mix is referred to as “curb mix”. This mix resembles mortar in that it is comprised of sand, Portland cement, fiber, and water. This mix does not have the 28 day strength of conventional concrete. The advantage of using curb mix is that it trowels easily and can be finished immediately after being placed. As the curb is a homogeneous mix, placing expansion joints is easily done.

A concrete mix provides a much stronger product, usually exceeding 3000 psi at 28 days. However, greater skill is required to finish the concrete. Whether the concrete is placed as a slab or curb, the time between placement and finishing is much longer than with a curb mix. The bleed water needs to come to the surface before the curb can be troweled. The curb needs to be troweled to bring the fines to the surface and work the aggregate below the surface. Cutting expansion joints in a concrete curb requires practice as the aggregate provides resistance when making the cut.

### **A. Recommended Mix Specifications for “Curb Mix” Curb (NOTE: This mix does not have the 28 day strength of a true concrete mix.)**

Ingredients:

- Coarse sand
- Portland Type I cement
- Fiber
- Water

A batch of curb mix made in a 6 cu ft mortar mixer will produce 15’ to 20’ of curb depending on the size of the curb being laid.

The following mixing instructions call for the sand and Portland cement to be mixed dry to ensure uniform consistency throughout the mix. However, there are numerous “recipes” for curb mix that vary the sand/cement ratio and when to add water. Too much Portland cement

and the mix will be goeey and difficult to work; too little cement results in a curb that won't stand up and has little strength.

Mixing instructions:

- Divide the 94-lb. bag of cement equally into two (2) 5 gallon buckets.
- Start mortar mixer in accordance with manufacture's instructions. Concrete mixers are not recommended for this dry application.
- Place two (2) buckets of sand into the mortar mixer.
- Place a small handful of fiber into mixer.
- Place one (1) 5 gallon bucket of Portland cement into the mixer.
- Mix ingredients for at least two minutes.
- Place two (2) more 5 gallon buckets of sand into the mixer.
- Add water sparingly until desired consistency is reached. The amount of water required will depend on the moisture in the sand. Allow mixer to mix ingredients for at least 15 seconds.
- Dump into a wheelbarrow and transport to machine.

The mix should be very dry, zero slump. Just enough water should be added to activate the cement. To test the mix, scoop a handful of concrete into your hand and form a ball. The ball should stay together and your hands should be almost dry. If the ball does not stay together (too dry) add a little water at a time until the proper consistency is reached. If one's hands are wet with water (too wet) add additional sand and Portland cement in small amounts until the proper consistency is reached.

The sand to cement ratio should range between 3:1 to 5:1.

### **Recommended Mix Specifications for Concrete Curb**

It is recommended that Grade 1 concrete be used. Grade 1 concrete is used for foundation walls, footings, garden walls, etc, and for uses where abrasion resistance and water tightness are not required and has a 28 day strength of 2500 to 3000 psi. The extruded curb provides the resistance that allows the machine to move itself forward through the extrusion process. If the mix is too wet the curb will spread and not provide sufficient resistance to move the machine forward.

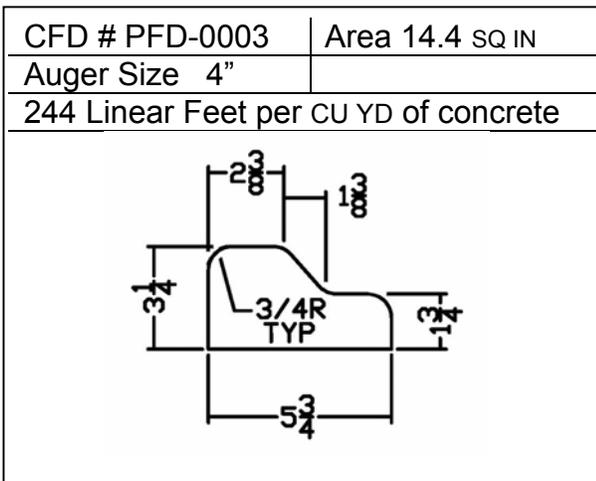
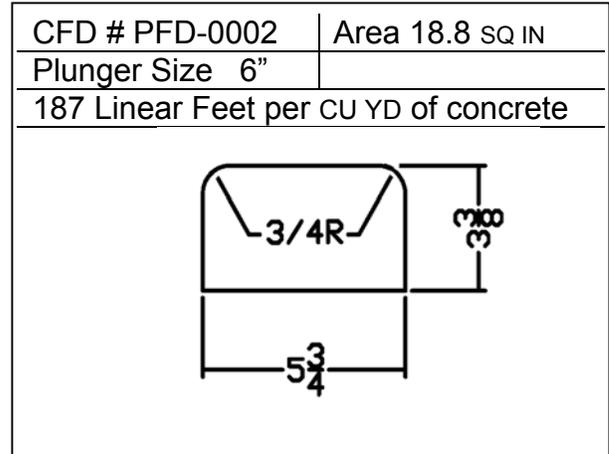
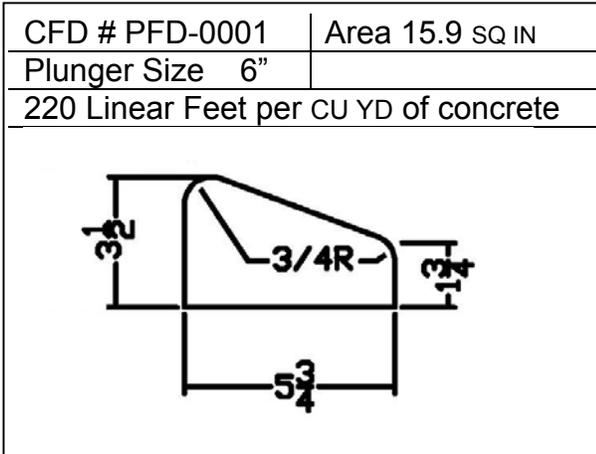
Use QUICKCRETE® Concrete Mix #1101 or similar product. Product can be mix by hand in a wheelbarrow, mortar tray or in a mortar mixer. Do not use a concrete mixer as it will not properly mix the concrete mix and water. For each 80# bag of concrete mix add 3-1/4 to 3-1/2 quarts of water. Mix thoroughly. The finished mix will be very dry. Do not make the mix too wet or the curb will not stand up.

To determine the number of lineal inches of curb that one 80# bag of concrete mix will make, divide 513 by the curbform area. As an example, when using a LFG-0002 with an area of 22 SQ IN one 80# bag of concrete mix will make approximately 23 lineal inches of curb ( $513 \div 22 = 23.3$ ). To determine lineal feet per bag, divide by 12. In this example one 80# bag of concrete mix will make approximately 1.9 linear feet of curb. Refer to the curbform selection chart to determine curbform area for each curbform.

# Curbforms

## A. Standard Curbforms.

Standard curbforms can be both left or right hand forms. By rotating the form and reinstalling in the housing one can change from a left to right hand form



## B. Custom curbforms can be made to meet specific needs.

Curbforms will be custom made. In addition to the price of the curbform, an engineering design and programming fee will be charged.