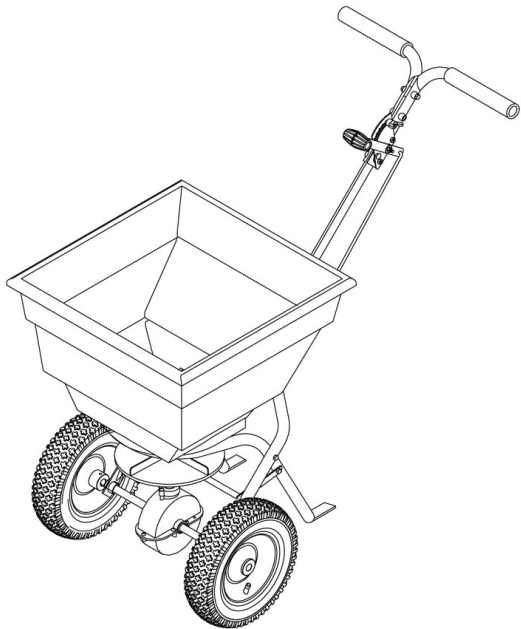


Owner's Manual/Parts List/Assembly Instructions

This Manual Must Be Read Before Operating The Equipment



TS45



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Madison Heights, Michigan 48071
866-5-TURFEX
www.turfexproducts.com

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This Owner's Manual is intended to acquaint you with your TurfEx TS45 Push Spreader and how to operate it safely and correctly. Read this manual and observe the instructions contained to ensure safety and performance.

This manual must be read by each person that will be involved in its assembly, operation, care, maintenance, repair, or transport. In addition to this manual, observe all workplace safety practices and take precautionary measures to ensure your own safety and the safety of those around you.

Should you lose this Owner's Manual, you can purchase additional copies through your local TurfEx Dealer.

SAFETY ALERT DEFINITION



This Safety Alert Symbol is used to pinpoint characteristics that, if not carefully followed, can create a safety hazard. When you see this symbol in this manual or on the machine itself, BE ALERT – your safety and the safety of others is involved.



DANGER

An accident will occur, resulting in Serious Injury or Death if the instructions are not followed.



WARNING

An accident may occur, resulting in Serious Injury, perhaps Death, if the instructions are not followed.



CAUTION

An accident may occur, resulting in Minor or Moderate Injury if the instructions are not followed.



Important Information; Property or Equipment Damage may result if not followed.

Before attempting any procedure in this book, the safety information in this manual must be read and understood by all personnel who have any part in the installation, operation, care, maintenance, repair, or transport of this equipment. Supplement this safety information with workplace regulations, material safety information, best working practices, and common sense.

DANGER

Never attempt to remove the spreader from a vehicle with material in it.

Never operate equipment when under the influence of alcohol, drugs, or medications. These substances alter your judgment and slow your reactions.

Always keep hands, feet, clothing, jewelry, and hair away from moving parts. These items will catch and be pulled in by moving parts, causing serious personal injury.

Always shut off vehicle before attempting to attach, detach, or service the spreader. Be sure vehicle is properly braked, chocked, and on level ground.

Use caution when driving and drive at a sensible speed, where braking distances are safe and safe handling characteristics are maintained.

Avoid large holes and ditches when transporting loads. Do not push close to creeks, ditches and public high-ways.

Never tow the spreader with a motorized vehicle.

Always clear and keep work area clean when operating.

Always wear safety gear, eye protection, gloves and work boots when operating the spreader.

Do not at any time carry passengers sit or stand on the spreader.

Do not allow children to play on, stand upon or climb in the spreader.

WARNING

Before working with the spreader, secure all loose clothing and hair. Clothing and hair could get caught in moving parts.

Keep hands and fingers free of moving parts.

Always wear safety glasses with side protection when servicing spreader or near where material is being spread.

Never allow children to operate or climb/play on or around equipment.

Always make sure people are clear of where you will be using equipment. Always check areas to be spread to ensure no hazardous conditions or substances are in the area.

Inspect the spreader before and after operating for defects. Parts that are broken, missing or worn out must be replaced before operating.

Be careful when operating on steep grades (hill) the spreader may tip over.

CAUTION

The safety information and the instructions outlined in this document cannot cover all possible conditions or situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product and must be supplied by the operator. Exercise care and observe precautions to prevent injury to yourself and others.

Never use wet materials or materials with foreign debris with the spreader. The spreader is designed to spread dry, clean, free-flowing material.

Never leave material in hopper between uses, or when storing. Turf-care materials are hygroscopic and will attract moisture and harden up.

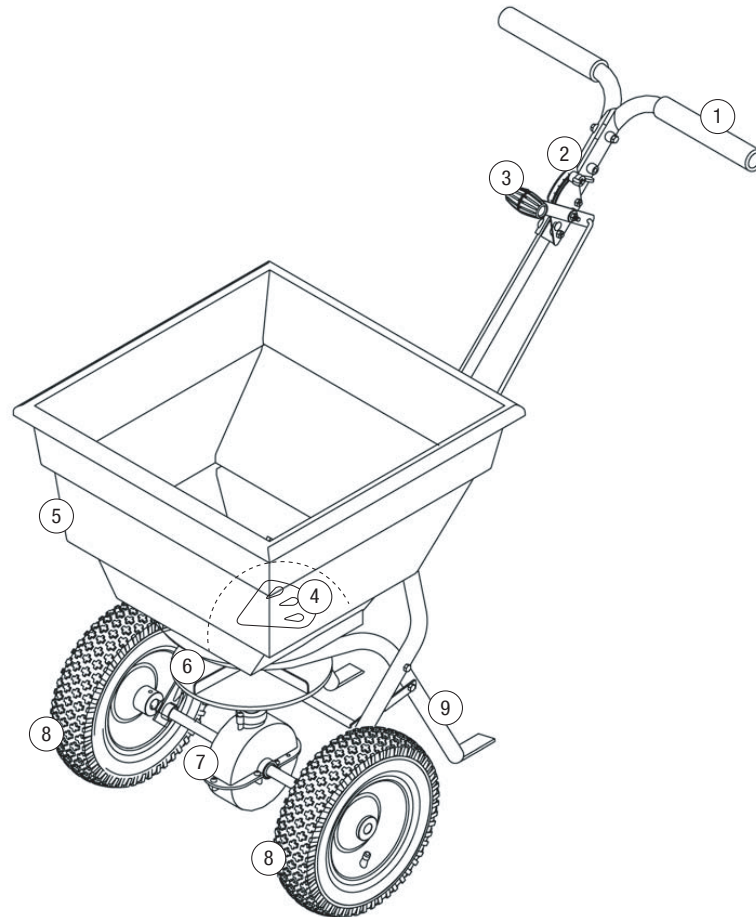
Empty the spreader and clean it after each use to prevent material from building up and covering metal parts, causing corrosion.

Do not use salt. Using salt in this spreader will damage the mechanism and shorten the life of the machine

Operating Instructions



Component Vocabulary



ID #	COMPONENT	NOTES
1	Handle	Pushes and moves the Spreader
2	Gate Stop	Adjust the open position of the gate. See Calibration Instructions.
3	Gate Lever	Opens and Closes the Gate. Pull back to Open the Gate; Push back to close.
4	Gate	Regulates material flow from the hopper.
5	Hopper	Maximum Capacity – 100 lbs.
6	Spinner	Evenly distributes material. Clean after each use.
7	Gearbox	Do not open the gear box; the gears are lubricated at the factory.
8	Wheels	Do not over-inflate! Max 25 PSI (1.72 bar)
9	Support Leg	Stabilizes Load and Spreader

Preparation/Spreading

PREPARATION

Inspect your spreader before each use. Make sure the Wheels turn easily, and the Spinner rotates clockwise when the spreader is pushed. The Hopper should be clean and free from cracks. The Gate should open and close smoothly.

Before filling the hopper, make sure that the Gate Lever is in the "0" position (fully forward) and the Gate is closed.

Make sure the R-pin Agitator is installed on the spinner shaft before filling the spreader.

Clean the Spinner after each use. Material stuck on the Spinner will cause uneven spreading.

Make sure the Hopper Screen is installed in the hopper before filling and using.

Please refer to fertilizer manufacturer's recommendation. Break up any lumps of fertilizer as you fill the hopper.

Set the Gate Stop with the flow control lever always in the "0" position.

SPREADING

Do not use spreader on windy days when spreading light materials or where the material must only be spread in specific areas; for example: grass seed, herbicides, etc.

Always start walking prior to opening the Gate.

When spreading material, make sure the spread pattern does not hit landscaping plants, shrubs, flowers, etc.

Do not over apply spreading material. Follow the recommended application rate for each turf-care product according to the manufacturers suggest (usually on the product package). Over application will lead to lawn damage and contamination.

Always close the Gate (using the Gate Lever) before turning or stopping the spreader.

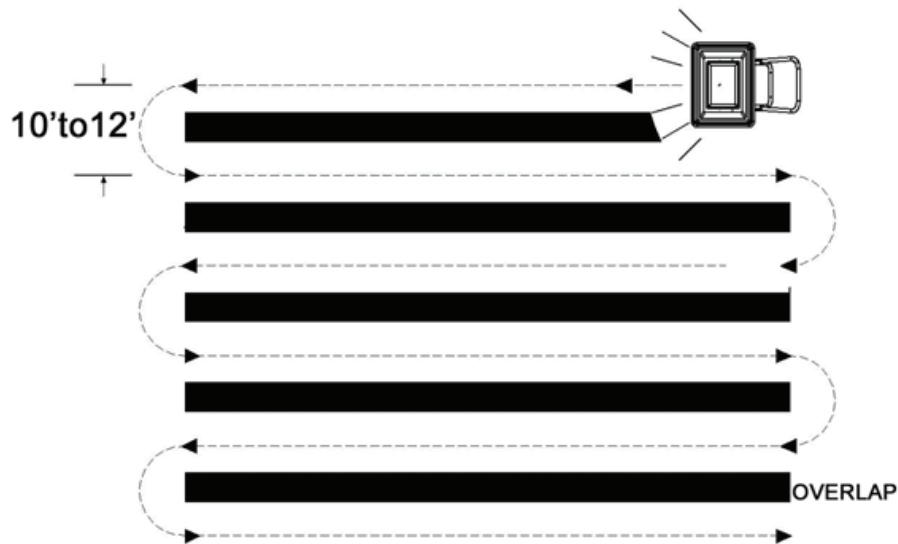
Keep the impeller plate horizontal when operating the spreader. Tilting the spreader will result in uneven coverage.

To maintain the same application rate when walking at a different speeds, adjust the flow rate. Reduce the flow setting for slower speeds and increase the flow setting for higher speeds. Use your calibration chart.

Every time you are ready to stop or turn around, close the gate to stop dispersing the material and continue one more stride. This reduces waste and avoids damaging the lawn with over-application

If spreading material is accidentally deposited too heavily in a small area, soak the area thoroughly with a garden hose or sprinkler to prevent burning of the lawn.

To ensure consistent coverage, make sure each broadcast pattern slightly overlaps the previous broadcast pattern. (See Diagram below.)



Overlapping For Consistent Coverage.

All seed and fertilizer mixtures, regardless of physical similarities, flow and spread differently. Therefore, your spreader should be calibrated specifically for each material you are spreading. Use the charts in this manual to record calibration data for your spreader for materials you commonly use.

MATERIALS NEEDED

To calibrate your spreader, you will need: Notepad, Stopwatch, Tape Measure, Scale, Plastic Tub, and an area for measuring spread width

MATH

Here is the equation used:

$$\text{Desired Application Rate} = \text{Output} \div (\text{Walking Speed} \times \text{Spread Width})$$

$\frac{\text{lbs/ft}^2}{\text{lbs/min}} = \frac{\text{lbs/min}}{\text{ft/min} \times \text{ft}}$

When calculating, the desired application rate needs to be converted to pounds-per-square-foot.

To Convert...

Pounds-per-Acre, multiply by 43,600

Pounds-per-Thousand-Square-Feet, multiply by 1000

Output is measured in pounds per minute. This is found by putting a known amount of material (five pounds) into the hopper (after setting the gate with the gate stop) and measuring how long it takes for the material to flow out of the hopper. To convert this time into pounds-per-minute, divide the pounds by the time (minutes). Seconds should be converted to minutes (the result is a decimal fraction).

The speed is required in feet-per-minute. 1 mile per hour is equal to 88 feet per minute. To maintain a consistent application rate, you will need to walk at a speed that you can maintain across the whole spreading area.

COLLECTING AND RECORDING DATA

Set the open position of the gate with the Gate Stop. With the gate closed, pour five pounds of material into the hopper. Make sure the plastic tub is below the spreader where it can catch material flowing from the gate. Open the gate and measure how much time it takes for all the material to come out of the Spreader. Record this. Repeat this procedure until you have a reading for each of the gate settings on the chart: 3, 6, 9, 12, 15, 18, 21, 24, 27, and 30.

Using the times obtained, calculate the pounds-per-minute – record the result in the Calibration Chart.

Measure the spread width by walking a short distance at approximately each speed (220 ft/min). When measuring, exclude the thin edges where the coverage thins out, this will be your 'effective spread width'. Record the resulting width in the chart.

CONFIGURING SPREADER

Find the required application rate from the product label. Decide the speed you will maintain and your spread width (use the chart below as a guide). Set the Spreader Speed based on the data you have collected and recorded in the chart to obtain the spread width.

Use the equation below to find the output and the values in the chart to find the gate setting.

$$\text{Required Output} = \text{Application Rate} \times \text{Walking Speed} \times \text{Spread Width}$$

$\frac{\text{lbs/min}}{\text{lbs/ft}^2} = \frac{\text{ft/min} \times \text{ft}}{\text{ft/min}}$

Find the gate setting that matches the required output using the values you recorded in the chart. You may need to adjust your walking speed slightly.



Gate Stop @ 20
Gate Lever closed

Calibration Chart



Material										
Gate Setting	3	6	9	12	15	18	21	24	27	30
Output (lbs/min)										
Speed (mph)	1.5	2	2.5	3						
Spread Width (ft)										

Material										
Gate Setting	3	6	9	12	15	18	21	24	27	30
Output (lbs/min)										
Speed (mph)	1.5	2	2.5	3						
Spread Width (ft)										

Material										
Gate Setting	3	6	9	12	15	18	21	24	27	30
Output (lbs/min)										
Speed (mph)	1.5	2	2.5	3						
Spread Width (ft)										

Material										
Gate Setting	3	6	9	12	15	18	21	24	27	30
Output (lbs/min)										
Speed (mph)	1.5	2	2.5	3						
Spread Width (ft)										

Material										
Gate Setting	3	6	9	12	15	18	21	24	27	30
Output (lbs/min)										
Speed (mph)	1.5	2	2.5	3						
Spread Width (ft)										

Material										
Gate Setting	3	6	9	12	15	18	21	24	27	30
Output (lbs/min)										
Speed (mph)	1.5	2	2.5	3						
Spread Width (ft)										

Material										
Gate Setting	3	6	9	12	15	18	21	24	27	30
Output (lbs/min)										
Speed (mph)	1.5	2	2.5	3						
Spread Width (ft)										

Calibration Chart



Material										
Gate Setting	3	6	9	12	15	18	21	24	27	30
Output (lbs/min)										
Speed (mph)	1.5	2	2.5	3						
Spread Width (ft)										

Material										
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Output (lbs/min)										
Speed (mph)	1.5	2	2.5	3						
Spread Width (ft)										

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Speed (mph)	1.5	2	2.5	3						
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Material										
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Output (lbs/min)										
Speed (mph)	1.5	2	2.5	3						
Spread Width (ft)										

Material										
Gate Setting	3	6	9	12	15	18	21	24	27	30
Output (lbs/min)										
Speed (mph)	1.5	2	2.5	3						
Spread Width (ft)										

CLEANING AND MAINTENANCE

Clean material out of hopper after each use.

Rinse and dry the spreader after each use.

Before operating make sure the tires have the recommended pressure – 25 psi (1.72 bar)

Periodically check all fasteners for tightness.

Periodically clean and lubricate parts.

Use a glossy enamel spray paint or paint marker to touch up scratched or worn painted metal surfaces.

Never exceed load capacity rating of 100 lbs, it will damage the spreader.

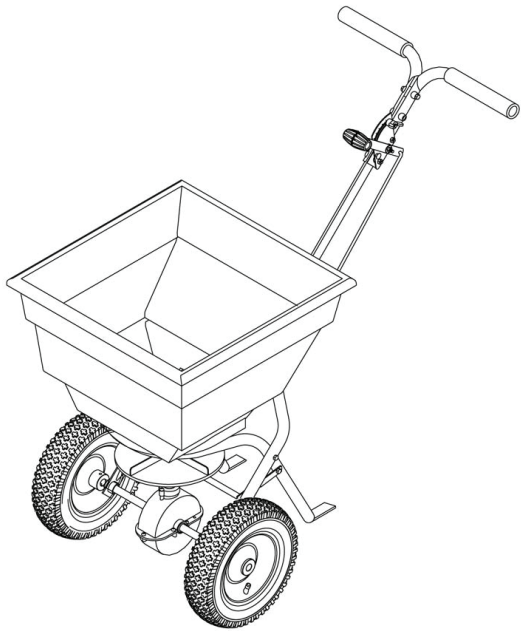
STORAGE

Never allow material to remain in the hopper for extended periods of time.

Before storing make sure the spreader is clean, dry, and freshly lubricated.

Store indoors.

Parts List

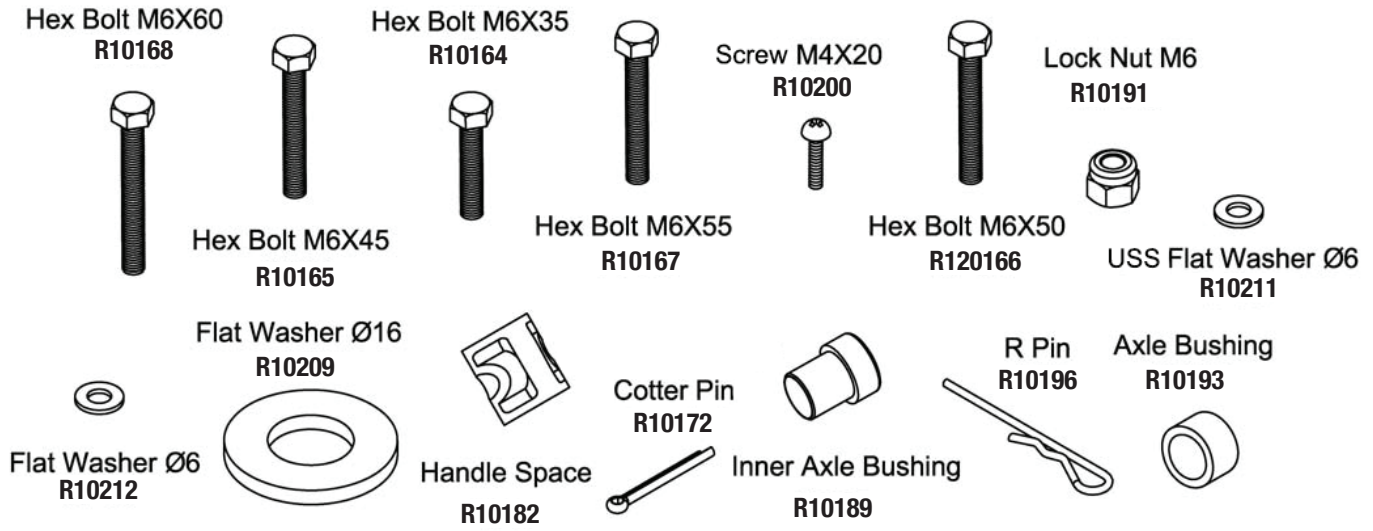


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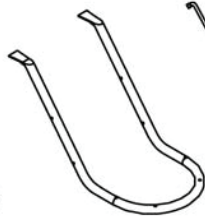
Wheel Frame
R10213



Upper Handles
R10217



Handle Shaft
R10181



Hopper Frame
R10176



Control Rod A
R10171



Cross Brace
R10174

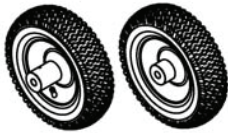


Spinner
R10205



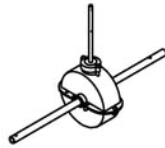
Rain Cover
R10188

Wheel
R10195



Gear Box & Axle Assembly

R10179

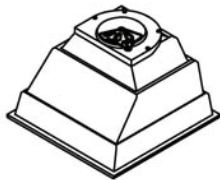


Gauge & Lever Assembly

R10178



Pivot & Bracket
R10218



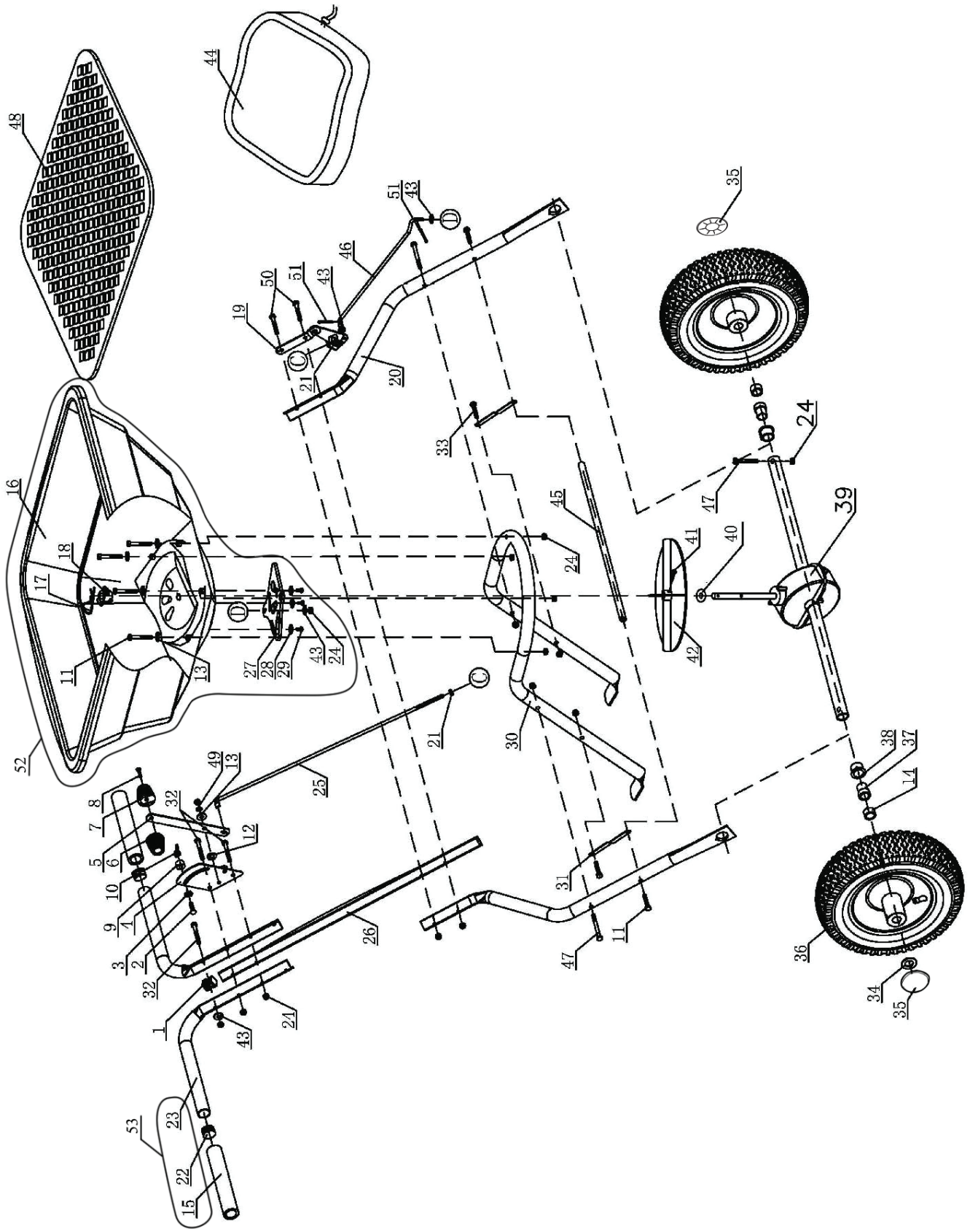
Hopper
R10216



Frame Brace
R10177

Screen
R10198





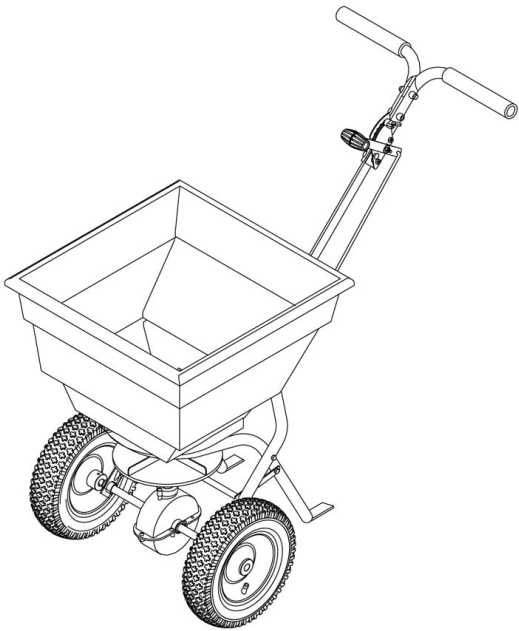
Parts Breakdown



27	R10203	1	SHUT OFF PLATE
28	R10210	3	WASHER, M4 USS
29	R10202	3	SCREW, ST4.2 X 40
30	R10176	1	FRAME
31	R10177	2	FRAME BRACE
32	R10166	3	BOLT, M6 X 50
33	R10164	3	BOLT, M6 X 35
34	R10209	1	WASHER, M16
35	R10173	2	PUSH CAP
36	R10195	2	PNEUMATIC WHEEL
37	R10189	2	INNER AXLE BUSHING
38	R10193	2	OUTER AXLE BUSHING
39	R10179	1	GEAR BOX & AXLE ASSEMBLY
40	R10206	1	THIN WASHER
41	R10200	1	SCREW, M4 X 20
42	R10205	1	SPINNER
43	R10212	4	WASHER, M6, FLAT
44	R10188	1	HOPPER COVER TS45
45	R10174	1	CROSS BRACE
46	R10170	1	CONNECTOR ROD
47	R10168	3	BOLT, M6 X 60
48	R10198	1	SCREEN TS45
49	R10190	1	LOCK WASHER, M6
50	R10167	2	BOLT, M6 X 55, HEX
51	R10172	2	COTTER PIN, M2 X 10
52	R10216	1	HOPPER ASSEMBLY, TS45
53	R10217	2	UPPER HANDLE, COMPLETE

ID #	PART #	QTY	DESCRIPTION
1	R10182	1	HANDLE SPACER
2	R10169	1	CARRIAGE BOLT, M6 X 25
3	R10175	1	EXTERNAL TOOTH WASHER, M8
4	R10178	1	GAUGE & LEVER ASSEMBLY
5	R10162	1	ADJUST HANDLE POLE
6	R10160	1	ADJUST HANDLE A
7	R10161	1	ADJUST HANDLE B
8	R10201	1	SCREW, ST 4.2 X 18
9	R10204	1	SPACER
10	R10214	1	WING NUT, M6
11	R10165	6	BOLT, M6 X 45, HEX
12	R10192	1	NYLON WASHER
13	R10211	1	WASHER, M6 USS
14	R10163	2	AXLE BUSHING
15	R10180	2	HANDLE COVER
16	R10185	1	HOPPER TS45
17	R10196	1	RETAINING PIN
18	R10186	1	HOPPER BUSHING
19	R10218	1	PIVOT & BRACKET ASSEMBLY
20	R10213	2	WHEEL ASSEMBLY FRAME
21	R10183	2	HEX NUT, M6
22	R10207	2	TUBE PLUG
23	R10208	2	UPPER HANDLE
24	R10191	16	NUT, M6, NYLOX
25	R10171	1	CONTROL ROD
26	R10181	1	HANDLE SHAFT

Assembly Instructions



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These installation instructions have been designed to guide you in assembling your TurfEx TS45 Push Spreader. Read and follow the directions contained to ensure safety and performance through correct assembly.

In addition to these instructions, observe all workplace safety practices and take precautionary measures to ensure your own safety and the safety of those around you.

Should you lose these assembly instructions, you can purchase additional copies through your local TurfEx dealer

TORQUE CHART

Use this chart as a guide for tightening hardware.

Hand-tighten all fasteners until the step is complete, then tighten to the recommended torque (unless specified otherwise in these instructions).

TORQUE CHART FT-LB	
Size	Torque
M4	1.9
M5	3.9
M6	6.6
M7	11
M8	16
M10	31.6
M12	55.1

Assembly Instructions

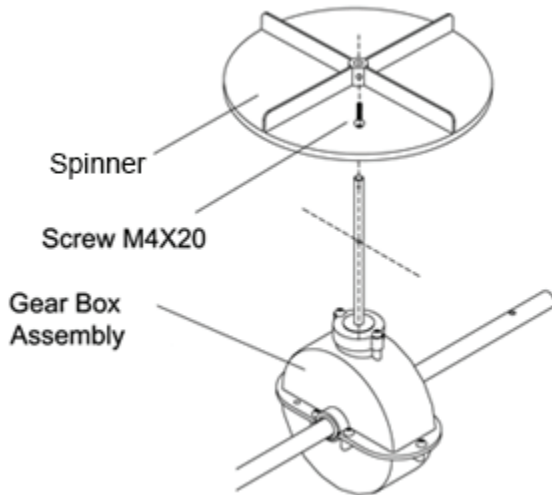


Before assembling the TS45 Push Spreader, read the Owner's Manual and all safety information contained therein.

You will need a set of metric tools.

STEP 1: ATTACH SPINNER TO THE GEAR BOX

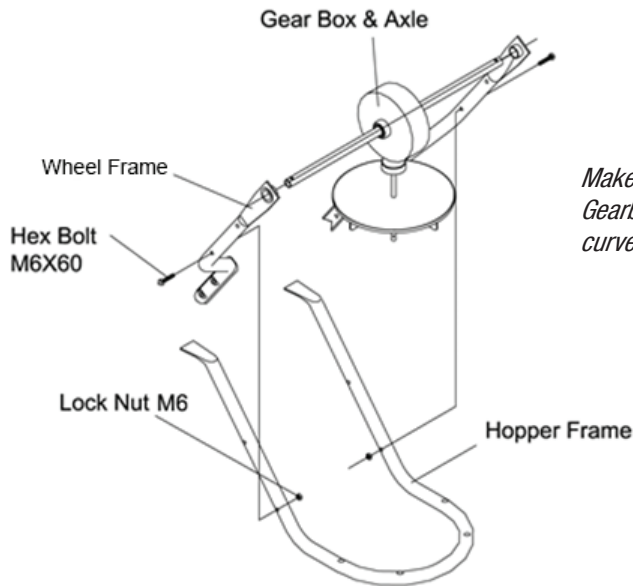
Insert Screw M4x20 through Spinner then through Spinner Shaft (part of Gear Box Assembly).



STEP 2: ASSEMBLE LOWER FRAME AND GEAR BOX

A: Attach a wheel frame on each side of gear box and axle.

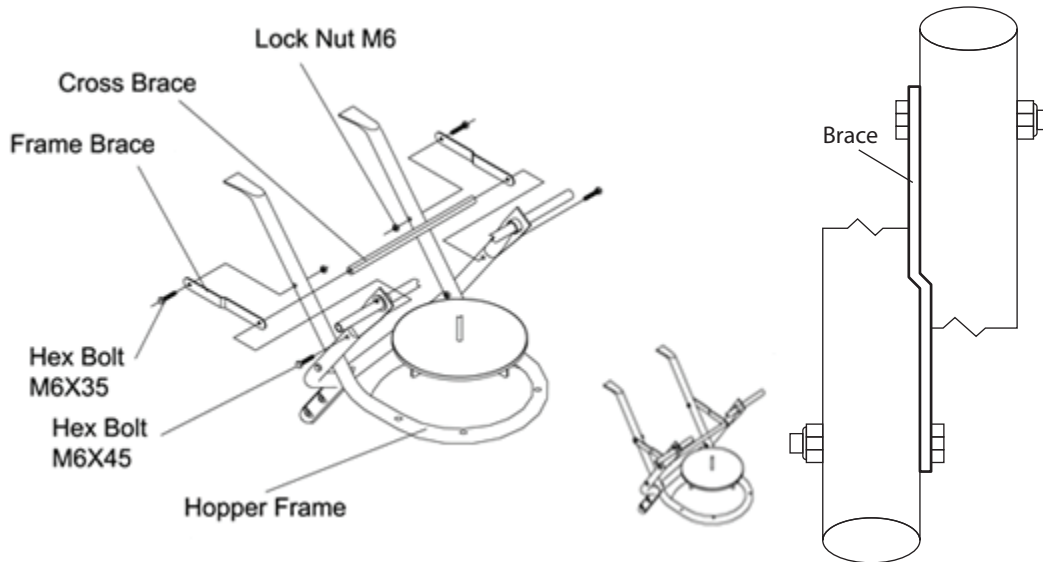
B: Fix the wheel frame to the hopper frame using hex bolt M6x60 and lock nut M6. Do not tighten the hardware.



Make sure the word "Front" on the Gearbox faces forward (toward the curve on the hopper frame).

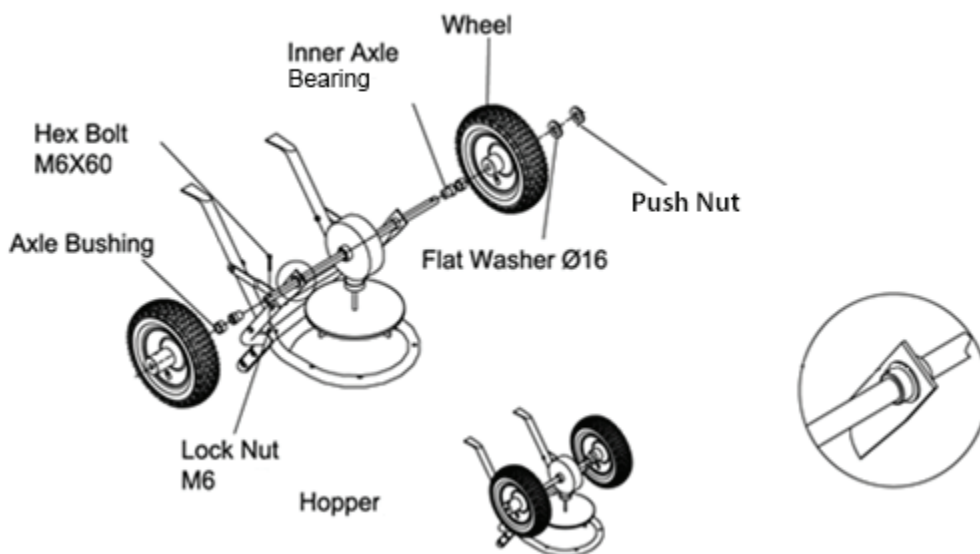
STEP 3: ATTACH FRAME BRACING

- A: Attach one end of each Frame Brace to the outside of the Hopper Frame using bolt M6 x 35 and M6 lock nut.
- B: Attach the other end of Frame Braces to the Wheel Frame.
- C: Attach Cross Brace and secure with Hex Bolt M6x45 at both sides. Do not tighten the hardware.



STEP 4: ATTACH THE WHEELS

- A: Slip Outer Axle Bearing onto one end of the axle and secured inside the Axle Frame (there is a slot that needs matched with the frame). Slide the Inner Axle Bushing on the axle and into place, fitting snugly inside the Inner Axle Bearing. Repeat this for both sides.
- B: Attach Wheel to the right side of the axle by inserting a M6 x 60 bolt through both the wheel hub and axle. Fasten with lock nut M5. Refer to the diagram below to ensure this wheel, the drive wheel, is in the correct location.
- C: Attach wheel to the left side of the axle. Secure with a washer and push nut.
- D: Install a Push Nut at the other end of the axle.

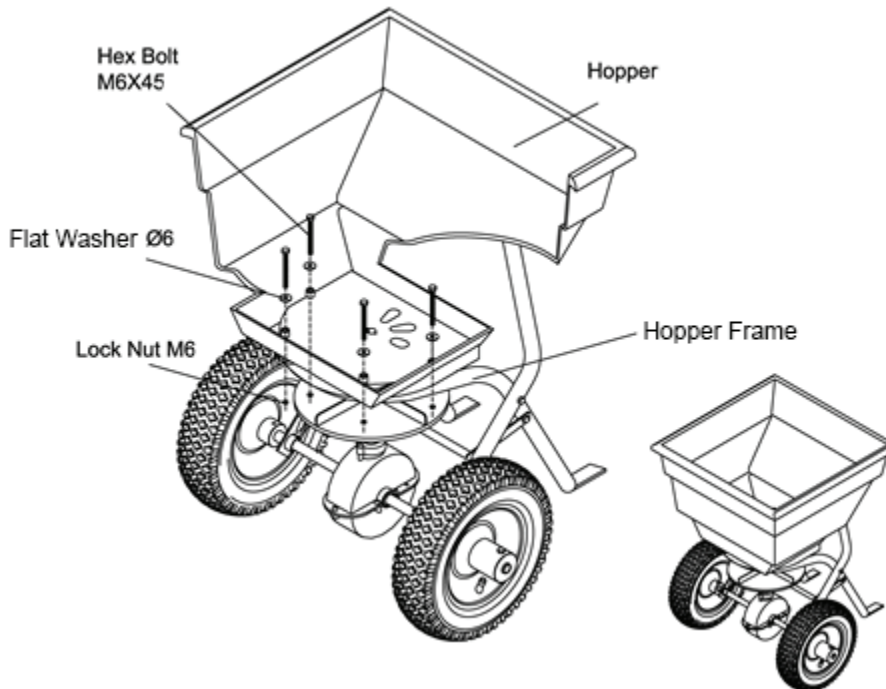


Assembly Instructions



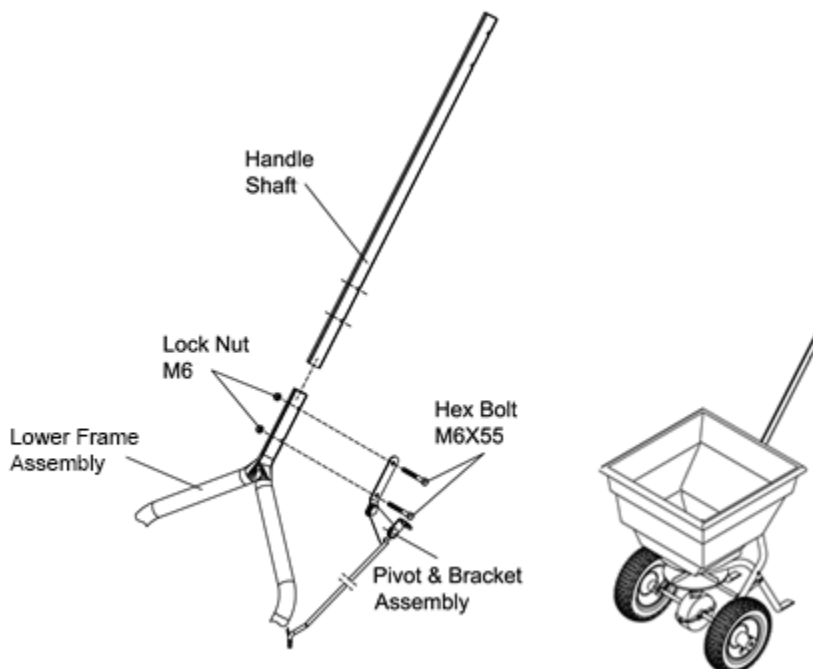
STEP 5: INSTALLING THE HOPPER

Using four sets of hex bolt M6x45, flat washer Ø6 and lock nut M6 to attach the hopper to the frame.



STEP 6: INSTALLING HANDLE SHAFT

Attach the handle shaft to Lower Frame Assembly and fix the pivot & bracket assembly on the Lower Frame Assembly by using two sets of hex bolt M6x55 and lock nut M6. The Bracket should be to the operator's left.

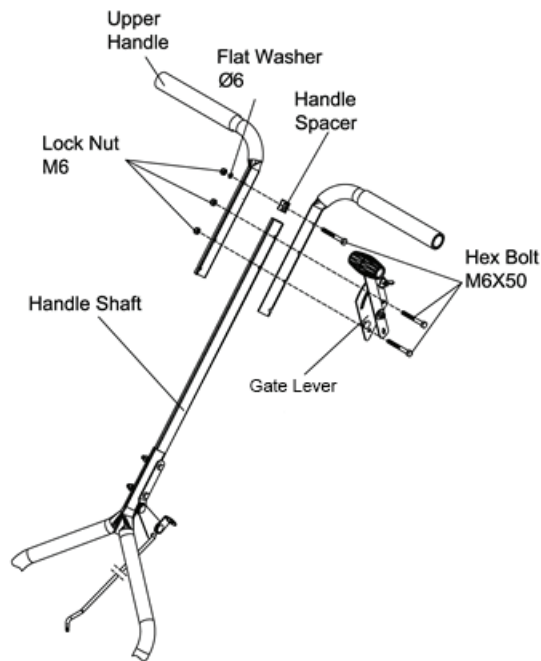


STEP 7: INSTALLING GATE LEVER AND HANDLE

A: Assemble the Upper Handles by using one Hex Bolt M6x50, Flat Washer Ø6 and Lock Nut M6 to put the Handle Spacer between two Upper Handles at the hole closest to the handle grips.

B: Use two sets of Hex Bolt M6x50, Flat Washer Ø6 and Lock Nut M6 to assemble the Upper Handles together and fix the Gate Lever on Upper Handle.

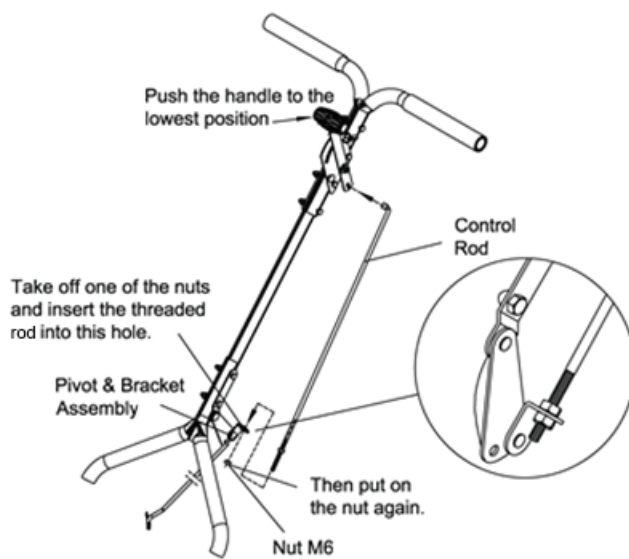
C: Tighten all the fasteners in this step.



STEP 8: INSTALLING GATE ROD

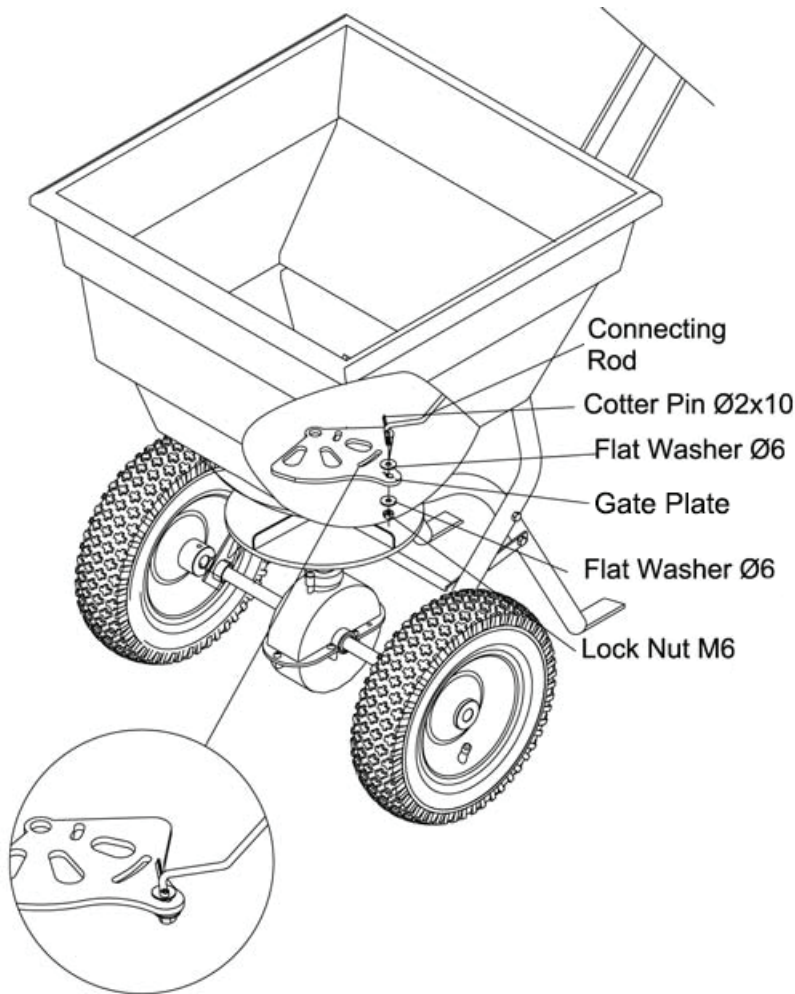
A: Push the Gate Lever forward to the lowest position and insert the upper end of Gate Rod into the slot of the Gate Lever.

B: Remove one nut from the Gate Rod and insert the rod to Pivot & Bracket Assembly and tighten on the removed nut again.



STEP 9: CONNECT THE GATE ROD TO GATE

Slip the threaded end of Gate Connecting Rod into the Gate with a Cotter Pin $\varnothing 2 \times 10$ and flat washer $\varnothing 6$ above the gate; then fasten with flat washer $\varnothing 6$ and lock nut M6 at the bottom of shut off plate.



STEP 10: FINISHING TOUCHES – ADJUSTMENTS

A: Loosen the Gate Stop, move the Gate Lever to the lowest position to close the Gate.

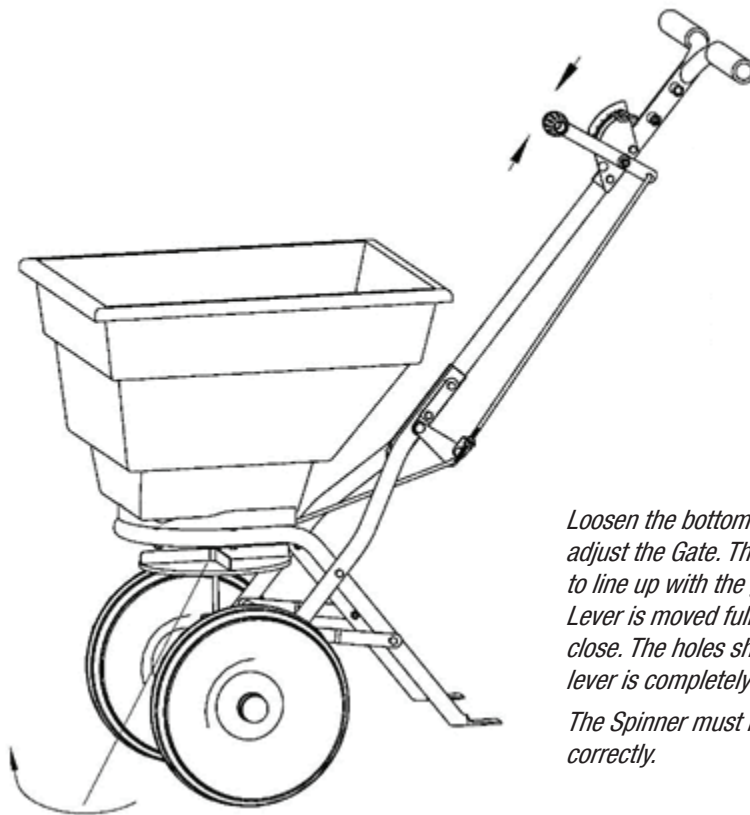
B: Move the lever to the highest position to open the gate.

C: If the Gate is not completely open when the lever is in the highest position, loosen the bottom nut on the control rod.

D: Use your hand and match up the holes on the hopper and gate so they are fully open.

E: Re-tighten the gate rod nut and check to make sure the gate operates properly when the lever is moved to the lowest and highest positions.

F: Tighten all hardware according to the torque chart in these instructions before operating the spreader.



Loosen the bottom nut on the Gate Rod to adjust the Gate. The holes in the hopper need to line up with the gate plate. When the Gate Lever is moved fully forward, the holes should close. The holes should be open when the lever is completely back.

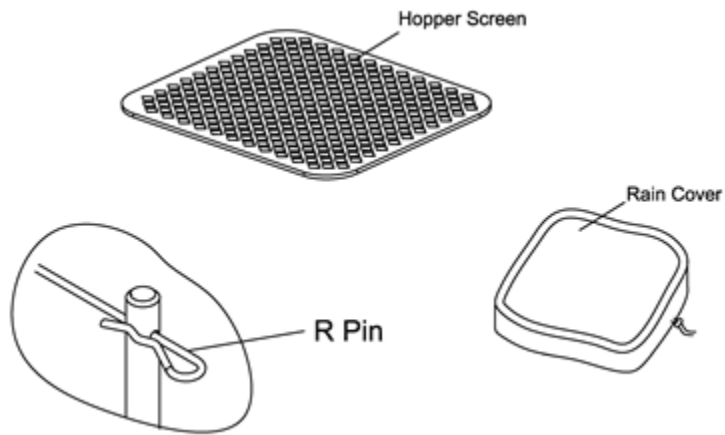
The Spinner must rotate clockwise to spread correctly.

Assembly Instructions



STEP 11: FINISHING TOUCHES – AGITATOR, SCREEN, RAIN COVER

Install the Agitator R-pin on the Spinner Shaft, the Hopper Screen, and the Rain Cover.



ONE YEAR PARTS LIMITED WARRANTY

TrynEx International warrants under the brand name TurfEx. The TurfEx models TS25, TS45 are warranted for a period of one (1) year from the date of purchase, including TrynEx Genuine Parts, against defects in materials or workmanship under normal use and service subject to the limitations detailed below. The warranty period will begin on the date of purchase by the original purchaser.

This warranty applies to the original retail purchaser only. This warranty does not cover damages caused by improper installation, misuse, lack of proper maintenance, alterations or repairs made by anyone. Due to the corrosive properties of the materials that are used in the turf-car industry, TurfEx does not warrant against damage caused by corrosion and/or rust. To seek remedy under this warranty, contact TurfEx at 866-5-TURFEX or email customercare@trynexfactory.com with the original purchase receipt, company/contact information and describe the nature of the manufacturing defect. TurfEx reserves the sole right to determine if a manufacturing nonconformity is at the root cause and at its discretion will replace the part(s) at no charge provided the failure is not the result of incorrect installation, mishandling, misuse, tampering, or normal wear and tear as determined by TurfEx.

ITEMS NOT COVERED

This warranty does not cover the following:

Any damage or deterioration due to normal use, wear and tear, or exposure.

Cost of regular maintenance service or parts, such as; tires, spinner, agitator, lubricants, and adjustments.

Any product or part which has been altered or misused or required replacement or repair due to normal wear.

Any repairs necessary due to use of parts, accessories or supplies, oil or lubricants, incompatible with the equipment or other than as recommended in the Owner's Manual or other operational instructions provided by TurfEx.

SPECIFIC LIMITATIONS

This warranty covers only the part(s) or product; any labor charges associated with repair or replacement of non-conformances are specifically excluded. Due to the likelihood of corrosion when using equipment outdoors, TurfEx makes no warranty against and specifically excludes part(s) or product degradation or failure due to corrosion or its effects. Clean and dry your spreader thoroughly after each use, as a preventative measure, coat all metal parts with a light oil or rust inhibitor.

LIMITATION OF LIABILITY

Neither TurfEx, TrynEx International, nor any company affiliated, makes any warranties, representations, or promises as to the performance or quality other than what is contained herein. The liability of TurfEx to the purchaser for damages arising out of the manufacture, sale, delivery, use, or resale of this product shall be limited to and shall not exceed the costs of repair or replacement of defective parts. TurfEx, TrynEx International, or any company affiliated shall not be liable for the loss of use, inconvenience, or any other incidental, indirect, or consequential damages.

NO DISTRIBUTOR OR DEALER HAS THE AUTHORITY TO MAKE ANY REPRESENTATIONS AND/OR PROMISES ON BEHALF OF TURFEX OR TRYNEX INTERNATIONAL OR ITS COMPONENT MANUFACTURERS TO ALTER AND/OR MODIFY THE TERMS AND/OR LIMITATIONS OF THIS WARRANTY IN ANY WAY.

OWNER'S RESPONSIBILITY

Only TrynEx genuine parts must be used to keep the warranty in force.

Properly maintain and safely operate and store their TurfEx equipment.

Due to the extremely corrosive nature of the materials being applied, it is the owner's responsibility to keep the product clean and free of these materials after use.

Properly maintain tires, lubrication, and mechanical drives and delivery systems.

Notes



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