## **OPERATING - AERATOR-SPREADER**

ALTERNATIVE FLOW CONTROL SETTING CHART		
Very Coarse Fertilizers (Large, heavy pellets and granules)	.24 kg/10 m2 (.5 lb/100 sq ft)	9
	.49 kg/10 m2 (1.0 lb/100 sq ft)	12
	.73 kg/10 m2 (1.5 lb/100 sq ft)	15
Medium Coarse Fertilizers (Pellets and granules)	.24 kg/10 m2 (.5 lb/100 sq ft)	7
	.49 kg/10 m2 (1.0 lb/100 sq ft)	10
	.73 kg/10 m2 (1.5 lb/100 sq ft)	13
Light Fertilizers (Nitrogen, etc.)	.05 kg/10 m2 (.1 lb/100 sq ft)	3-1/2
	.10 kg/10 m2 (.2 lb/100 sq ft)	4-1/2
	.15 kg/10 m2 (.3 lb/100 sq ft)	5-1/2

# **Checking Tractor Ground Speed**

- Check ground speed in an open area.
- Measure a test area that is 30.5 m (100 ft) in length.
- Operate the tractor at wide open throttle. Operate tractor at a low speed and drive the tractor the test distance.
   Record the time needed to travel that distance.
- Make three passes, recording the time for each pass. The average time should be 14 to 23 seconds to achieve the recommended operating speed range:
  - at 4.8 km/h (3 mph), the average time traveling the test distance should be 23 seconds.
  - at 8 km/h (5 mph), the average time traveling the test distance should be 14 seconds.
- Adjust speed accordingly to achieve the recommended speed range.

### Operating Aerator-Spreader



CAUTION: Avoid injury! Keep hands and feet away from all moving parts. Never carry riders.

IMPORTANT: Avoid damage! Never exceed the weight tray capacity of 45 kg (100 lb).

Engage wheels to transport position when crossing concrete or asphalt surfaces.

Always back carefully in a straight line to avoid jackknifing the attachment.

Periodically remove debris build up that can restrict or damage the tines.

- 1. Park tractor safely. (See Parking Safely in the SAFETY section.)
- 2. Install aerator-spreader to tractor.
- 3. Place unit in transport position.
- 4. Add recommended weight to weight tray.

NOTE: Do not fill hopper and transport over long distances without dropping material. This will result in packing the material, causing poor or erratic discharge. Fill hopper only at operation site.

- 5. Drive to work area for filling of hopper.
- 6. Park tractor safely.
- 7. Lock the flow control lever in the closed position.
- 8. Set the flow control rate to proper setting.
- 9. Fill hopper with material to be spread. Break up all lumps while filling.
- 10.Place unit in desired operating position.
- 11.Start machine.
- 12. Drive tractor forward and unlock the flow control lever to begin aerating and spreading.
- 13. Tow aerator-spreader at 5 to 8 km/hr (3 to 5 mph) for safe and effective operation.
- 14. Check for uniform hole pattern and depth. Close the flow control lever and park tractor safely before making any adjustments.

### **OPERATING - LAWN ROLLER**

#### When to Use the Lawn Roller

Use the lawn roller at any time to pack down new sod, seed, and unlevel ground.

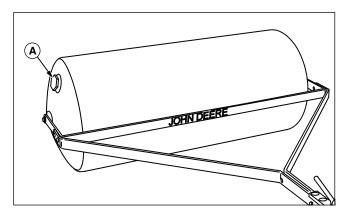
### Adding Weight to the Lawn Roller



CAUTION: Avoid injury! Never add weight to lawn roller unless unit is installed to tractor.

Do not overload your tractor. Fully loaded roller can weigh 177 kg (390 lb).

1. Install lawn roller to tractor.



- 2. Remove plug (A).
- 3. Fill roller with water or sand.

IMPORTANT: Avoid damage! Threaded plug might start hard. Use care not to strip or cross-thread the plug.

4. Install and tighten plug securely.

### Operating Lawn Roller Safely

- DO NOT overload your tractor. Fully loaded roller can weigh 176.9 kg (390 lb).
- Refer to tractor manual to determine proper towing capacity of your tractor.
- When backing, carefully back straight to avoid jackknifing which could result in damage to equipment.
- Stay alert for holes in the terrain an other hidden hazards.
- Do not drive close to creeks, ditches and public highways.
- · Watch out for traffic when crossing or near roadways.
- Only tow your Lawn Roller behind vehicles for which it

was designed – lawn tractors and lawn and garden tractors.

### **Checking Tractor Ground Speed**

- Check ground speed in an open area.
- Measure a test area that is 30.5 m (100 ft) in length.
- Operate the tractor at wide open throttle. Operate tractor at a low speed and drive the tractor the test distance.
   Record the time needed to travel that distance.
- Make three passes, recording the time for each pass.
  The average time should be 14 to 23 seconds to achieve the recommended operating speed range:
  - at 4.8 km/h (3 mph), the average time traveling the test distance should be 23 seconds.
  - at 8 km/h (5 mph), the average time traveling the test distance should be 14 seconds.
- Adjust speed accordingly to achieve the recommended speed range.

### **Operating Lawn Roller**



CAUTION: Avoid injury! Keep hands and feet away from all moving parts. Never carry riders.

IMPORTANT: Avoid damage! Always back carefully in a straight line to avoid jackknifing the attachment.

- 1. Park tractor safely. (See Parking in the SAFETY section.)
- 2. Install lawn roller to tractor.
- 3. Fill roller with water or sand.
- 4. Drive tractor to work area.
- 5. Tow lawn roller at 5 to 8 km/hr (3 to 5 mph) for safe and effective operation.

### **SERVICE**

# **Servicing the Attachment**



CAUTION: Avoid injury! Plugging spoons and tines are sharp. Wear gloves and handle with care. Shield sharp parts during service work.

To prevent or eliminate rust on tines or plugging spoons, apply a light oil on them after each use.

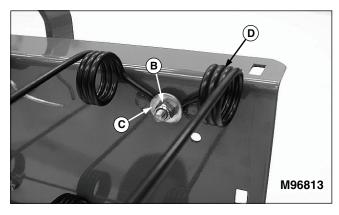
For rust appearing on any part of your attachment, sand lightly and coat with enamel.

Apply a drop of lubricating oil to each nylon/tine bearing assembly, axles, and working areas of the plugging spoons before each use.

Periodically check the aerating tines or plugging spoons. Remove any debris that might build up and restrict their action.

Periodically check tightness of all fasteners.

Be sure to remove all unused fertilizers from hopper immediately after use and clean with water to prevent corrosion.



- 3. Remove and retain locknut (B) and washer (C). Then remove and discard the damaged tine set.
- 4. Install new tine set making sure tine tips are pointed in same direction as the other tines on the unit. Secure with original hardware.
- 5. Slide safety wire through all tine coils. Bend ends of safety wire over last coil (D) at each end of unit.

# **Replacing Thatcherator Tines**



- 1. Straighten end of retention safety wire (A) with pliers.
- 2. Remove safety wire from damaged tine set.

## **Storing the Attachment**



CAUTION: Avoid injury! Plugging spoons and tines are sharp. Wear gloves and handle with care. Store attachments so sharp parts are shielded from contact.

- 1. Park tractor safely. (See Parking Safely in the SAFETY section.)
- 2. Remove all weight and material from attachment.
- 3. Remove attachment from tractor.
- 4. Wash attachment thoroughly. Allow to dry completely.
- 5. Replace all worn, damaged, or missing parts.
- 6. Sand any rusted areas lightly and paint with enamel.
- 7. Lubricate moving parts.
- 8. Apply a light coverage of oil to all tines and plugging spoons to prevent rust.
- 9. Reduce air pressure in tires.
- 10. Store attachment in a dry area with tines against wall or floor to avoid accidental contact.
- 11.Block up attachment off the ground to prevent contact with moisture and take weight of the tires.
- 12.Place a waterproof cover over the attachment if it must be stored outside.

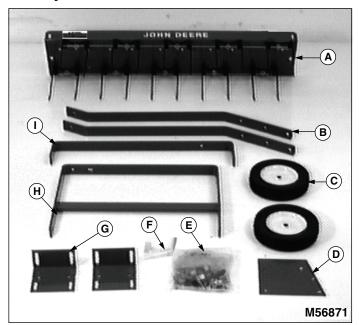
# **Removing the Attachment from Storage**



CAUTION: Avoid injury! Plugging spoons and tines are sharp. Wear gloves and handle with care. Store attachments so sharp parts are shielded from contact.

- 1. Wash the attachment if necessary. Allow to dry completely.
- 2. Inspect tires for deterioration.
- 3. Inflate tires to proper pressure.
- 4. Make sure all parts are in place and hardware is secure.

# **Identify Parts**



### **Box of Parts**

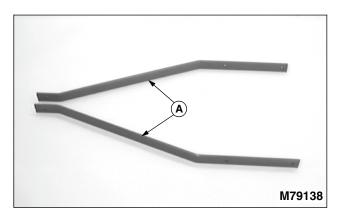
Qty.	Part Description
1	Tray Assembly (A)
2	Tow Bar (B)
2	Wheel Assembly (C)
1	Lock Plate (D)
1	Bag of Parts (E)
1	Tethered Pin Assembly (F)
2	Mounting Bracket (G)
1	Carriage Frame (H)
1	Lift Handle (I)

# **Bag of Parts**

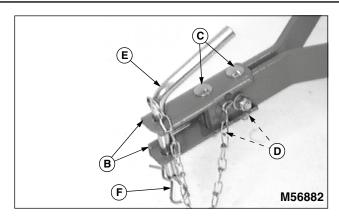
Qty.	Part Description
1	Vinyl Handle Grip
2	Plated Pivot Bushing, 3/8 in.
2	Painted Clevis
1	Spring
2	Carriage Bolt, 5/16 x 1-1/4 in.
1	Hex Bolt, 5/16 x 1-1/2 in.

Qty.	Part Description
1	Carriage Bolt, 5/16 x 2 in.
2	Carriage Bolt, 5/16 x 2-1/4 in.
1	Hex Bolt, 3/8 x 1-1/4 in.
1	Hex Bolt, 3/8 x 1-1/2 in.
2	Hex Bolt, 5/8 x 3-1/4 in.
4	Hex Nut, 5/8 in.
2	Lockwasher, 5/8 in.
2	Flat Washer, 5/16 in.
2	Flat Washer, 3/8 in.
4	Flat Washer, 5/8 in.
2	Hex Locknut, 3/8 in.
1	Hex Nut, 5/16 in.
1	Lockwasher, 5/16 in.
1	Lift Lock Pin
7	Carriage Bolt, 5/16 x 1 in.
13	Hex Nuts w/Nylon Insert, 5/16 in.

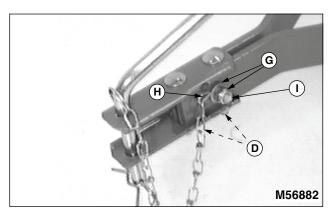
## **Assemble Tow Bars**



1. Align tow bars (A) as shown.

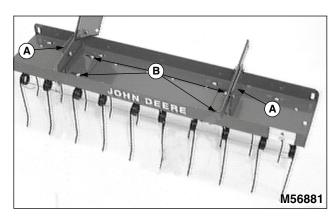


- 2. Assemble two clevis straps (B) to front of tow bars using two  $5/16 \times 2-1/4$  in. carriage bolts (C) and two locknuts (D). Hand tighten only.
- 3. Slide clevis assembly forward until front carriage bolt is within 6 mm (1/4 in.) from the end of tow bars.
- 4. Install hitch pin (E) in clevis and fasten with spring locking pin (F) through chain loop.

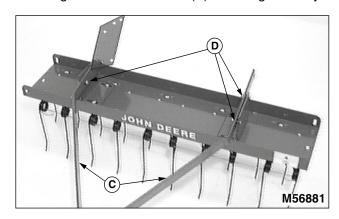


- 5. Install 5/16 x 1-1/2 in. cross hex bolt (I). Place chain hook (H) around bolt and secure with 5/16 in. flat washer and locknut (I).
- 6. Align tow bars and clevis. Tighten nuts (D) completely.
- 7. Tighten nylock nut (G) while holding chain hook forward and centered between clevis halves.

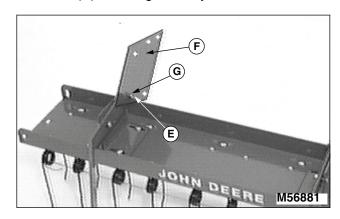
### **Install Tow Bars to Tray Assembly**



1. Using second set of holes on left side of tray and third set of holes on right side of tray, fasten two mounting brackets (A) to the tine tray with the small flange resting on the tray surface and facing inward. Secure with four 5/16 x 1 in. carriage bolts and hex nuts (B). Hand tighten only.

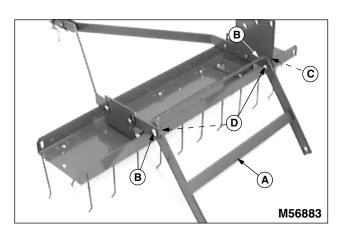


2. Attach tow bars (C) to the inside surfaces of the mounting brackets using three 5/16 x 1 in. carriage bolts and locknuts (D). Hand tighten only.

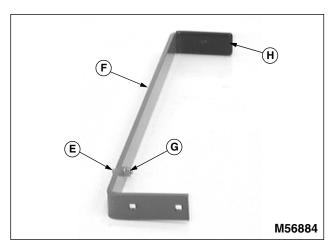


3. Align hole (E) in the lift lock plate (F) with holes in the right tow bar and mounting bracket. Attach the lift lock plate to the inside of the tow bar with a 5/16 x 1-1/4 in. carriage bolt and locknut (G). Hand tighten only.

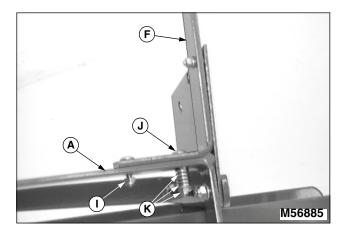
# Install Carriage Frame Assembly and Lift Handle



1. Attach carriage frame assembly (A) (side with two holes should be next to lift lock plate) to rear holes (B) in tow bars and lift lock plate at right side (C). Secure with  $3/8 \times 1-1/4$  in. hex bolt (left side) and  $3/8 \times 1-1/2$  in. (right side lift lock plate), 3/8 in. bushings, 3/8 in. flat washers, and fasten with 3/8 in. locknuts (D). Tighten so bar is secure but free to pivot.

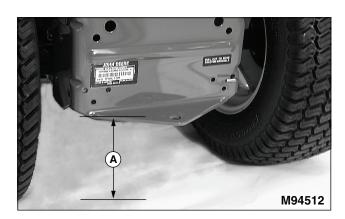


- 2. Pre-assemble lift lock pin (E) into hole in lift handle (F) with pin extending away from bend in lift handle. Secure with 5/16 in. lockwasher and 5/16 in. hex nut (G). Tighten securely.
- 3. Slide vinyl handle grip (H) over end of lift handle.



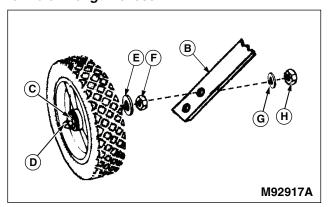
- 4. Attach the lift handle (F) to holes in top of carriage frame (A) using one  $5/16 \times 1-1/4$  in. carriage bolt and locknut (I) and one  $5/16 \times 2$  in. carriage bolt (J), spring, flat washer, and locknut (K).
- 5. Push the lift handle against lift lock plate and tighten bolts until locknuts have two bolt threads exposed.

#### **Install Wheels**



1. Measure length (A) from ground to top of hitch plate with tractor parked on a level surface.

NOTE: If length (A) is 22.9 cm (9 in.) or more, wheel is attached at top hole shown in wheel strap (B). Use lower hole if length is less.



- 2. Install one 5/8 in. flat washer (C) onto 5/8 x 3 in. hex bolt (D).
- 3. Slide wheel onto bolt so side with flat hub surface (not rounded) is seated against washer and bolt head.
- 4. Install 5/8 in. flat washer (E) and 5/8 in. hex nut (F) onto threaded end of bolt. Tighten nut enough so the wheel can still spin freely.
- 5. Install wheel assembly to outside of wheel strap (B) using top or bottom hole as required. Secure with lockwasher (G) and 5/8 in. hex nut (H).
- 6. Hold a wrench on nut (F) and tighten nut (H) completely.
- 7. Repeat for other wheel assembly.

# **ASSEMBLY - PLUG AERATOR**

# **Identify Parts**



Picture Note: 40-Inch model shown.

NOTE: The following assembly instructions apply to both the 40-lnch and 48-lnch models.

#### **Box of Parts**

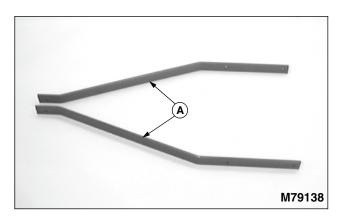
Qty.	Part Description
1	Plug Tray Assembly (A)
2	Tow Bar (B)
2	Wheel Assembly (C)
1	Hitch Pin Assembly (D)
1	Bag of Parts (E)
1	Lift Handle (F)

#### **Bag of Parts**

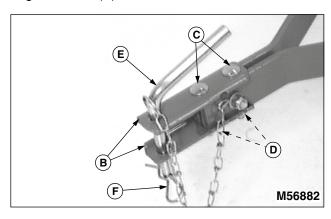
Qty.	Part Description
3	Transport Pin, 5/16 in.
2	Carriage Bolt, 5/16 x 2 1/4 in.
1	Flat-Top Carriage Bolt, 3/8 x 2 in.
4	Hex Bolt, 5/16 x 1 in.
1	Hex Bolt, 5/16 x 1-1/2 in.
2	Hex Bolt, 1/2 x 3-3/4 in.
3	Hex Nut, 5/16 in.
4	Hex Nut, 1/2 in.
1	Oblong Locknut, 3/8 in.

Qty.	Part Description
7	Nylock Nut, 5/16 in.
3	Medium Lockwasher, 5/16 in.
2	Medium Lockwasher, 1/2 in.
5	Flat Washer, 11/32 x 11/16 x 1/16 in.
1	Flat Washer, 13/32 x 13/16 x 1/16 in.
4	Flat Washer, 17/32 x 1/16 x 3/32 in.
1	Vinyl Handle Grip
2	Clevis
1	Spring

### **Assemble Tow Bars**

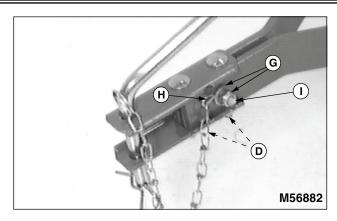


1. Align tow bars (A) as shown.



- 2. Assemble two clevis straps (B) to front of tow bars using two  $5/16 \times 2-1/4$  in. carriage bolts (C) and two locknuts (D). Hand tighten only.
- 3. Slide clevis assembly forward until front carriage bolt is within 6 mm (1/4 in.) from the end of tow bars.
- 4. Install hitch pin (E) in clevis and fasten with spring locking pin (F) through chain loop.

## ASSEMBLY - PLUG AERATOR



- 5. Install  $5/16 \times 1-1/2$  in. cross hex bolt (I). Place chain hook (H) around bolt and secure with 5/16 in. flat washer and locknut (I).
- 6. Align tow bars and clevis. Tighten nuts (D) completely.
- 7. Tighten nylock nut (G) while holding chain hook forward and centered between clevis halves.

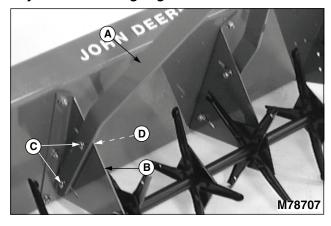
### **Install Tow Bars to Tray Assembly**



CAUTION: Avoid injury! Plug spoons have sharp edges. Wear gloves and handle with care.

1. Stand plug tray assembly on its rear side.

NOTE: You may want to get a helper or use a hoist to steady tow bars during alignment.

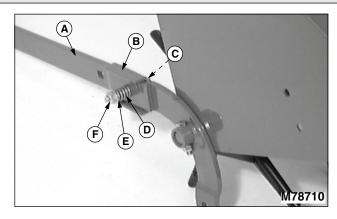


- 2. Align tow bars (A) to outside of brackets (B) and fasten with two  $5/16 \times 1$  in. hex bolts (C). Secure with  $11/32 \times 11/16 \times 1/16$  in. flat washers and nylock nuts (D) to the inside of the bracket. Hand tighten only. Repeat for other side.
- 3. Hold tow bars all the way to top of slots and tighten nylock nuts (D).

#### **Install Lift Lever**



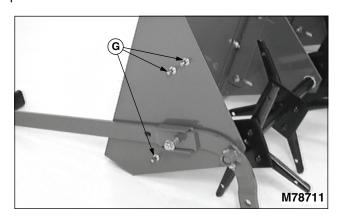
CAUTION: Avoid injury! Plug Spoons have sharp points. Wear gloves and handle with care.



- 1. Slide lift handle (A) into lift arm channel (B). Lift handle offset goes to outside of lift arm.
- 2. Install  $3/8 \times 2$  in. flat-top carriage bolt (C) with bolt head to inside of lift arm. Slide spring (D) and  $13/32 \times 13/16 \times 1/16$  in. flat washer (E) onto bolt.

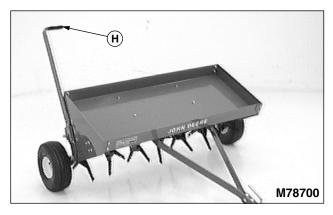
NOTE: Make sure bolt head (C) is properly seated when tightening locknut.

3. Install and tighten locknut (F) until one full thread is exposed.



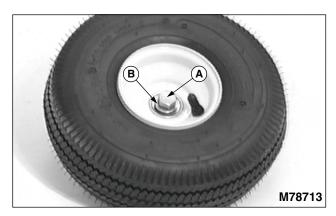
4. Install three transport pins (G) with threaded end to the inside. Secure with 5/16 in. lockwashers and 5/16 in. hex nuts on the inside. Tighten nuts completely.

# **ASSEMBLY - PLUG AERATOR**

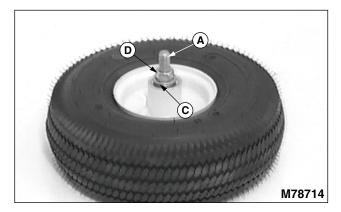


5. Install vinyl handle grip (H) on lift handle.

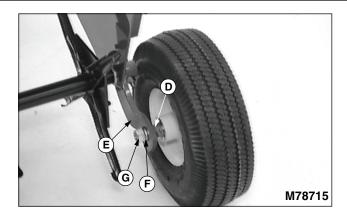
# **Assemble Transport Wheels**



1. Install  $1/2 \times 3 \cdot 3/4$  in. hex bolt (A) and  $17/32 \times 1/16 \times 3/32$  in. flat washer (B) on valve stem side of wheel hub.



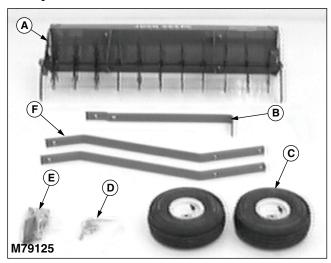
- 2. Turn wheel over and install  $17/32 \times 1/16 \times 3/32$  in. flat washer (C) and 1/2 in. hex nut (D).
- 3. Tighten nut (D) until washers (B) and (C) keep bearing from turning on bolt without forcing bearings to be pressed inward. After tightening, make sure the wheel can be turned by hand with the bearing remaining stationary on the bolt.
- 4. Repeat for other wheel assembly.



- 5. Install wheel assembly on lift arm (E). Then install 1/2 in. lockwasher (F) and 1/2 in. hex nut (G). Hold wrench on nut (D) and tighten nut (G) completely. This will ensure the wheel hub remains properly adjusted.
- 6. Repeat for other wheel assembly.

# **ASSEMBLY - SPIKER AERATOR**

# **Identify Parts**



### **Box of Parts**

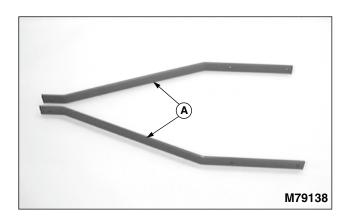
Qty.	Part Description
1	Tine Tray Assembly (A)
1	Lift Handle (B)
2	Wheel Assembly (C)
1	Hitch Pin Assembly (D)
1	Bag of Parts (E)
2	Tow Bar (F)

### **Bag of Parts**

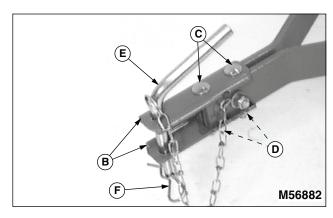
Qty.	Part Description
1	Vinyl Handle Grip
2	Painted Clevis
2	Transport Lock Pin
2	Hex Nut, 5/16 in.
2	Lockwasher, 5/16 in.
1	Spring
4	Hex Bolt, 5/16 x 1 in.
2	Carriage Bolt, 5/16 x 2-1/4 in.
2	Hex Bolt, 1/2 x 3-3/4 in.
4	Hex Nut, 1/2 in.
2	Lockwasher, 1/2 in.

Qty.	Part Description
4	Flat Washer, 1/2 in.
1	Hex Bolt, 5/16 x 1-1/2 in.
7	Nylock Nut, 5/16 in.
5	Flat Washer, 5/16 in.
1	Special Plow Bolt, 3/8 x 2 in.
1	Flat Washer, 3/8 in.
1	Oblong Locknut, 3/8 in.

### **Assemble Tow Bars**

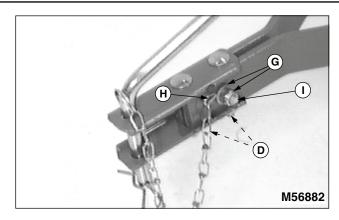


1. Align tow bars (A) as shown.



- 2. Assemble two clevis straps (B) to front of tow bars using two  $5/16 \times 2-1/4$  in. carriage bolts (C) and two locknuts (D). Hand tighten only.
- 3. Slide clevis assembly forward until front carriage bolt is within 6 mm (1/4 in.) from the end of tow bars.
- 4. Install hitch pin (E) in clevis and fasten with spring locking pin (F) through chain loop.

# **ASSEMBLY - SPIKER AERATOR**

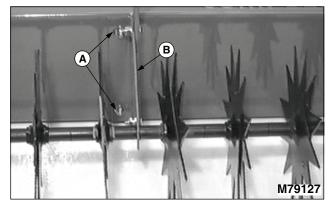


- 5. Install  $5/16 \times 1-1/2$  in. cross hex bolt (I). Place chain hook (H) around bolt and secure with 5/16 in. flat washer and locknut (I).
- 6. Align tow bars and clevis. Tighten nuts (D) completely.
- 7. Tighten nylock nut (G) while holding chain hook forward and centered between clevis halves.

### **Install Tow Bars to Tray Assembly**

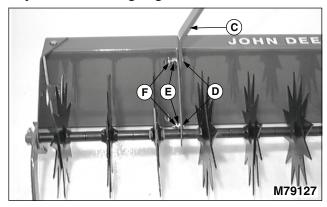


CAUTION: Avoid injury! Tines have extremely sharp points. Wear gloves and handle with care.



1. Stand tray assembly on its back. Loosen nylock nuts (A) on mounting brackets (B) to ensure proper bracket alignment while installing tow bars.

NOTE: You may want to have a helper or use a hoist to steady tow bars during alignment.

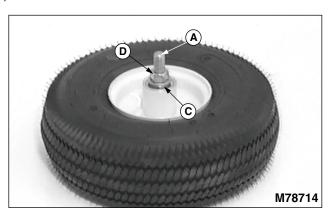


- 2. Align tow bars (C) to insides of brackets (B) and fasten with two 5/16 x 1 in. hex bolts (D), flat washer (E), and nylock nuts (F). Hand tighten only. Repeat for other side.
- 3. Hold tow bars all the way to top of slots and tighten nylock nuts (F).
- 4. Tighten nylock nuts (A) on mounting brackets.

### **Assemble Transport Wheels**



1. Install  $1/2 \times 3-3/4$  in. hex bolt (A) and 1/2 in. flat washer (B) on valve stem side of wheel hub.

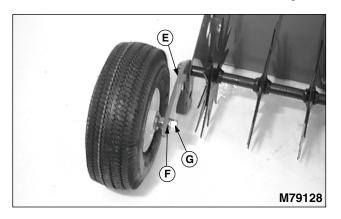


2. Turn wheel over to install second 1/2 in. flat washer (C)

# **ASSEMBLY - SPIKER AERATOR**

and 1/2 in. hex nut (D).

3. Tighten nut (D) until washers (B) and (C) keep bearing from turning on bolt without forcing bearings to be pressed inward. This causes wheel hub to rotate on bearings.

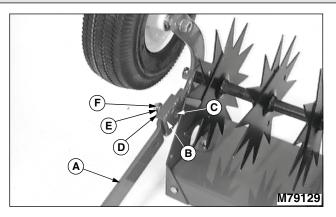


4. Install wheel assembly on lift arm (E), one on each side, and secure with 1/2 in. lockwasher (F) and 1/2 in. hex nut (G). Tighten nut securely so wheel hubs are free to turn on bearings.

### **Install Lift Lever**



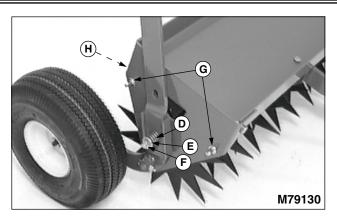
CAUTION: Avoid injury! Tines have extremely sharp points. Wear gloves and handle with care.



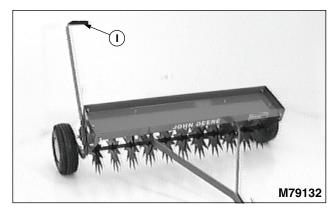
- 1. Turn tray on its top and align lift lever (A), with offset to outside, to right side of lift arm (B).
- 2. Fasten with  $3/8 \times 2$  in. flat-top beveled carriage bolt (C), head of bolt to the inside, and on outside spring (D), 3/8 in. flat washer (E), and 3/8 in. oblong locknut (F).

NOTE: Be sure head of carriage bolt (C) is properly seated in square hole of wheel assembly bracket during tightening of locknut.

3. Tighten locknut (F) until one full thread is exposed.



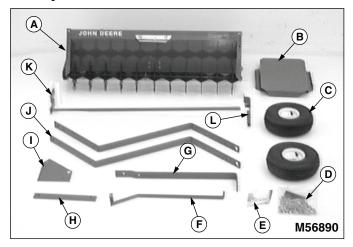
4. Turn tray upright and install two 5/16 in. transport lock pins (G), extending pin to the outside, and fasten with 5/16 in. lockwashers, and 5/16 in. hex nuts (H) to the inside. Tighten nuts.



5. Install hand grip (I) on lift lever.

# **ASSEMBLY - AERATOR-SPREADER**

# **Identify Parts**



### **Box of Parts**

Qty.	Part Description
1	Hopper Assembly (A)
1	Weight Tray (B)
2	Wheel Assembly (C)
1	Bag of Parts (D)
1	Tethered Pin Assembly (E)
1	Flow Control Lever (F)
1	Lift Handle (G)
1	Tow Bar Support Strap (H)
1	Lift Plate (I)
2	Tow Bar (J)
1	Lift Shaft Assembly (K)
1	Wheel/Lift Lever Mounting Bracket (L)

# **Bag of Parts**

Qty.	Part Description
1	Shutter Link
4	Transport Lock Pin
1	Vinyl Handle Grip
2	Clevis
1	Spring
4	Hex Bolt, 5/16 x 1-1/2 in.

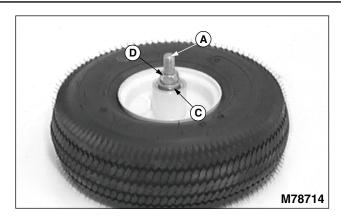
Qty.	Part Description
2	Carriage Bolt, 5/16 x 2-1/4 in.
1	Special Plow Bolt, 3/8 x 2 in.
3	Hex Head Bolt, 5/16 x 3/4 in.
1	Hex Bolt, 5/16 x 1-1/4 in.
2	Hex Bolt, 1/2 x 3-3/4 in.
4	Hex Nut, 5/16 in.
4	Hex Nut, 1/2 in.
4	Lockwasher, 5/16 in.
2	Lockwasher, 1/2 in.
1	Flat Washer, 5/16 in.
1	Flat Washer, 3/8 in.
4	Flat Washer, 1/2 in.
1	Locknut, 3/8 in.
10	Nylock Nut, 5/16 in.

# **Assemble Transport Wheels**

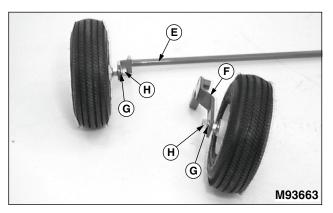


1. Install 1/2 x 3-3/4 in. hex bolt (A) and 1/2 in. flat washer (B) on valve stem side of wheel hub.

# **ASSEMBLY - AERATOR-SPREADER**

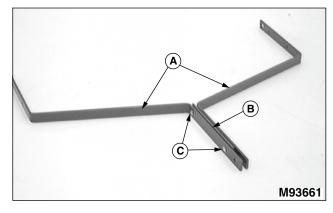


- 2. Turn wheel over to install second 1/2 in. flat washer (C) and 1/2 in. hex nut (D).
- 3. Tighten nut (D) until washers (B) and (C) keep bearing from turning on bolt without forcing bearings to be pressed inward. This causes wheel hub to rotate on bearings.

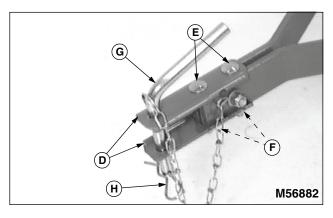


- 4. Install wheel assemblies to support brackets (E) and (F) and fasten with 1/2 in. lockwasher (G) and 1/2 in. hex nut (H).
- 5. Tighten nut securely so wheel hubs are free to turn on bearings.
- 6. Set wheel assemblies aside.

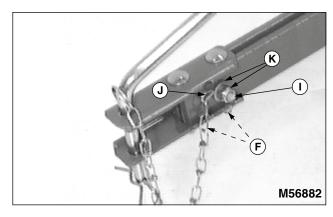
#### **Assemble Tow Bars**



- 1. Align tow bars (A) as shown.
- 2. Align support strap (B) between tow bars and fasten with two  $5/16 \times 1-1/2$  in. hex bolts and nylock nuts (C). Hand tighten only.



- 3. Assemble two clevis straps (D) to front of tow bars using two  $5/16 \times 2-1/4$  in. carriage bolts (E) and two locknuts (F). Hand tighten only.
- 4. Slide clevis assembly forward until front carriage bolt is within 6 mm (1/4 in.) from the end of tow bars.
- 5. Install hitch pin (G) in clevis and fasten with spring locking pin (H) through chain loop.



6. Install 5/16 x 1-1/2 in. cross hex bolt (I). Place chain hook (J) around bolt and secure with 5/16 in. flat washer