55 Series Granular Applicators
Implement Mount

ASSEMBLY AND INSTALLATION

Issue Date: April 1997
# VALMAR 55 Series Applicators Implement Mount Assembly and Installation Manual

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1 - Introduction & Set-up

Your Valmar applicator is designed for use on a variety of planters, cultivators and harrowbars. The following instruction set will detail the procedures for installing your applicator to your implement. Read through these instructions as well as the Operator's Manual before attempting any installation.

While we have attempted to have the instructions deal with as many specific implements as possible, due to constant changes in implement design and availability we cannot cover all applications in the same detail. In these cases the owner will have to use this instruction set as a general guide when fitting the applicator to his implement. It may also be necessary to make some modifications to the kit.

Left and right are determined from the position of the operator facing in the direction of travel.

Follow the procedures in your implement manual for leveling and blocking up the implement. If none are provided, use the following procedures:

1. Place the implement on a firm and level base. Do not attempt any installation work on an uneven or soft base.
2. Lower the implement wing extensions if so equipped.
3. Stabilize the implement front and rear so that it is sitting level widthwise and lengthwise. Use the implement hitch jack for this purpose and heavy timber or jackstands as required.
2 – Hopper Installation

General Guidelines

Your Valmar applicator can be installed in two different configurations, depending on your implement\(^1\). It may be possible to mount the applicator directly to the implement frame, or it may be necessary to mount it with base tube extensions. No matter which method you choose, pay attention to the following guidelines:

1. Do not install the applicator so that folding wing extensions or lifting mechanisms will cause damage.

2. Do not install the applicator so that it could be struck by the rear tractor tires during sharp turns.

3. Use lifting equipment with a minimum capacity of 2000 pounds. Loops are provided on the hopper for lifting. Do not attempt to lift the hopper from the bottom as this may damage the manifold.

4. Before actually installing the hopper, hoist it over the desired location to check for obstructions.

5. When assembly is complete, check for air leaks along the top and bottom of the manifold. Replace manifold if necessary.

Direct Mounting (Fig. 2-1)

If the applicator can be mounted directly to the implement, center it over the desired position and fasten it down over the base tubes as shown. It will be necessary to add one base tube extension to mount the ground drive. Do so as follows:

1. Loosen one \(\frac{1}{2}\)" bolt at the end of the base tube.

2. Slide one end of the base tube extension through the base tube of the hopper to the desired position. Tighten the \(\frac{1}{2}\)" bolt.

3. When the ground drive is installed, cut off excess length from the base tube extension.

Mounting with base tube extensions (Fig. 2-1 & 2-2)

If it is necessary to mount your applicator with base tube extension, do so as follows. Under no circumstances should you exceed the length limits for the extensions as noted in Figure 2-2.

1. Loosen the \(\frac{1}{2}\)" bolts on the base tubes of the hopper.

2. Slide the base tube extensions through the base tubes to the desired position. Tighten the \(\frac{1}{2}\)" bolts.

3. Clamp the base tube extensions securely to the implement frame.

4. Cut off the excess length from the base tube extensions. Do not trim the base tube extension where the ground drive will be mounted before determining its location.

---

\(^1\) Some applications may require a pedestal mount to raise the applicator over an obstruction. A pedestal mount kit (18.6251) is available from your Valmar dealer.
Figure 2-1: Hopper Mounting

Figure 2-2: Base Tube Limits
Figure 2-3: Harrowbar Mounting

Heavy harrows are fast becoming a popular means of applying granular products and seeds. Valmar and several harrowbar manufacturers have developed kits which provide a clean mounting for Valmar applicators. Some harrowbars have hitch brackets specifically for Valmar applicators as shown in Fig. 2-3.

Consult the table on the following page to see what particular Valmar hopper and extra kits (if any) are required for mounting to your harrowbar.
<table>
<thead>
<tr>
<th>Harrow Model</th>
<th>2055</th>
<th>2455</th>
<th>3255</th>
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<tr>
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<td>CN.2219 &amp; 18.7535</td>
<td>CN.2309 &amp; 18.7535</td>
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</tr>
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</tr>
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<tr>
<td>Brandt</td>
<td>CN.2209 &amp; 18.8550</td>
<td>CN.2219 &amp; 18.8549</td>
<td>CN.2309 &amp; 18.8549</td>
</tr>
</tbody>
</table>

Some harrowbar manufacturers offer additional mounting kits and accessories such as platforms. Please inquire with them as to availability and cost.

Harrowbar mounting is not recommended for the 1655.
Options

Various options are available for the 1055 to enhance its performance. This section offers a brief description of each of the options as well as potential reasons for using them. Detailed instructions for the assembly and operation of the optional equipment are contained in the kits themselves. See your Valmar dealer for pricing and availability.
3 – Ground Drive Installation

The ground drive assembly consists of five basic components. They are the X-sprocket, upper ground drive, lower ground drive, cable lift arm, and cable mount bracket. When installing these components, keep in mind the following:

1. For safety reasons, lower the implement into field position so that it is resting on the ground.

2. Install ground drive components so that they clear the implement and applicator in both transport and field positions.

3. Do not lock bearings or sprockets to shafts before roller chains are installed and all sprockets are properly aligned.

4. Guard against sprocket slippage. Grind one flat spot (or drill one indent) for each of the three sprocket locations.

5. The ground drive wheel must trail behind the assembly for any ground drive location.

X-sprocket (Fig. 3-1)

The X-sprocket adjusts the metering rate according to implement width. Select an X-sprocket that suits your implement width using the following formula:

Implement Width (inches) = No. Of Teeth
Number of Outlets

This formula is identical to the one for deflector spacing. The X-sprocket size is equal to the deflectors spacing in inches. If the answer contains a fraction, round off to the nearest sprocket size. For example, a 2055 on a 44 foot implement:

\[
\frac{44' \times 12}{20} = 26.4 = 26 \text{ Tooth Sprocket}
\]

You must purchase a weld-on X Sprocket separately. This kit includes a hub for welding to a 16 tooth sprocket or larger as shown in Figure 3-1. For sprockets smaller than 16 teeth you must purchase the hub as well.
Figure 3-2: Upper Ground Drive

Assemble the upper ground drive as shown in the diagram above. Apply grease to the flange bearings and bearing tube to ease their assembly.

INSTALL THE SPRING CORRECTLY! Both tails of the spring must point upward so that downward pressure on the wheel results. Install the cable arm mount directly above the spring, level, at the top, regardless of orientation to the wheel pivot base. Guard against sprocket slippage by grinding a flat spot or drilling an indent where each sprocket is located. Tighten a set screw onto the flat spot.
Mount the wheel pivot base to the front or rear base tube extensions using one of the configurations shown above. Note that Positions 7 and 8 are not possible because the base tube will interfere with the normal travel of the wheel arm.

On the 1655, it is possible to mount the ground drive directly to the base tube of the hopper. If the ground drive is mounted to the base tube extensions on the 1655, spacer plates must be inserted between the wheel pivot base and the base tube extension as shown in Figure 3-4.
Figure 3-5: Lower Ground Drive

First, assemble the lower ground drive completely and then insert into the upper wheel arm. Second, cut and install the roller chains from the wheel to the pivot and from the X-sprocket to the gearbox.

Guard against sprocket slippage by grinding a flat spot or drilling an indent where each sprocket is located. Tighten a set screw onto the flat spot.
Figure 3-6: Cable Lift Arm

Assemble the Cable Lift Arm as shown above. Depending on the rotation of the Wheel Pivot Base, fasten the Cable Lift Arm to the cable lift mount or under the U-bolts that secure the Wheel Pivot Base. Refer to Figure 3-3.

Cable Mount Bracket (Fig 3-7)

The Cable Mount Bracket is designed for harrow bars and MAY NOT BE NECESSARY on cultivators. Its purpose is to provide extra travel to lift the ground drive.

Install the Cable Mount Bracket using the 12" bolts provided. Locate the bracket so the cable can be connected without interference. Trim the bracket to the desired length after the cable has been installed.
Figure 3-8: Sprocket Layout

Install the wheel lift cable using the following guidelines:

1. With the implement in field position on level ground, raise the ground drive wheel two inches and block it in this position.

2. Route the cable to the lifting mechanism (or Cable Mount Bracket). Use the second pulley provided if necessary.

3. Pull the cable tight and secure it to the lifting mechanism with the thimble and cable clamps.

4. Remove the blocking from the ground drive wheel. The wheel should touch the ground just when the implement does. Adjust the cable length if necessary.

5. Operate the lift mechanism a few times. Ensure that the cable loop on the ground drive assembly does not contact the pulley on the cable lift arm when fully raised.

6. Before operating the applicator, lock bearings on the axle and pivot shafts. Secure all sprockets by grinding flat spots on shafts and tightening set screws to them.

Use the wheel arm chain to hold the wheel drive in the transport position when using the implement without operating the applicator. Hook the appropriate chain link to the transport lockup location, as shown in Figure 3-6. Store the wheel arm chain by wrapping it around the cable lift arm and placing it on the S-hook.

**IMPORTANT**

ENSURE SPROCKET PLACEMENT IS CORRECT! Calibrate the applicator as detailed in Chapter 5 of the Operator's Manual.
4 - Hydraulics / Control Unit

Hydraulic Hose Hookup (Fig. 4-1)

On applicators with a hydraulic fan drive, hydraulic hoses and couplers must be purchased separately to connect the flow control valve to the tractor hydraulic couplers. Ensure that all hoses and connectors are clean. Keep in mind the following when installing them:

1. Use 1/2" ID hoses up to 18 feet in length and
2. The ends of the hoses that attach to the flow controller will require 37 degree flare (JIC) female fittings, 5/8 nominal size (dash 10),
3. Ensure that the hoses have a minimum rating of 2500 psi continuous duty.
4. The minimum flow requirement for your tractor’s hydraulics is 13 gpm for the 1655, 10 gpm for the 2055, 10.5 gpm for the 2455, and 13 gpm for the 3255.
5. Avoid routing the hoses where they could twist, wear or snag on the implement. Secure them with tie straps.
6. After hookup, operate the hydraulic fan drive at low speed for 15 minutes to purge out any air and to break in the hydraulic motor. Failure to do so could result in hydraulic motor damage.
Control Unit Installation (Fig 4-2)

Install the control unit as follows:

1. Connect the power cable (the cable with the ring terminals) to the battery. On the 1655, the RED wire connects to the POSITIVE terminal and the BLACK wire connects to the NEGATIVE terminal. On the 2055, 2455 and 3255, the WHITE wire connects to the POSITIVE terminal and the BLACK wire connects to the NEGATIVE terminal.

2. Connect the control unit wiring harness to the applicator harness.

3. Switch the control unit on. (On the 2055, 2455 and 3255, set the selector switch to "BOTH") The clutch halves should lock together instantly. If not, consult the Troubleshooting and Adjustments and Service chapters of the Operator's Manual.
5 - Deflector Installation

Deflector Positions (Fig. 5-1 & 5-2)

Six basic deflector positions are shown. Be sure to maintain the recommended working height. If harrowbar height is adjustable, remember that deflector height will be affected.

On cultivators, the deflectors may be installed at the front or rear of the tillage implement depending on the required depth of product incorporation. Mounting at the front will provide deeper incorporation. Consult your chemical representative to select the recommended incorporation depth for the chemical being applied.

When choosing deflector positions, keep the following in mind:

Position 1 - On harrowbars, be sure the range of motion of the harrow rack will not damage the deflector.

Position 2 - Avoid using this position on harrowbars as the deflector is vulnerable to damage when the harrow bar is in the transport position. This position may be suitable under the transport wheel or near the end wheel where it is more protected in transport.

Position 3 - Place the deflector at least 3 inches away from the frame to avoid product build up on top of tool bar. Avoid extending it too far forward on harrows as it becomes vulnerable in transport position.
Position 4 - offers the most protection for the deflector on harrows. Be sure the deflector pattern is not interrupted by the position of the harrow rack frame or by the cultivator structure.

Position 5 - On harrowbars, be sure to keep the deflector up as high as possible to maintain deflector height and avoid deflector damage in the field position.

Position 6 - On harrows, be sure that deflector does not interfere with the range of motion of the harrow racks. Be sure the deflector pattern is not interrupted by any part of the implement structure.

Spacing

Proper deflector spacing is critical for effective product application. Calculate deflector spacing in inches using the following formula:

\[
\text{Implement Width (inches)} = \text{Spacing} \times \frac{\text{Number of Outlets}}{\text{Spacing}}
\]

Sample calculation:

40’ Implement = 480” wide

Valmar 2055 IM = 20 outlets

\[
\frac{480”}{20 \text{ Outlets}} = 24” \text{ Deflector Spacing}
\]

The center two deflectors would be installed 12 inches either side of the implement centreline. The remaining deflectors would be installed on 24 inch spacings from the two center mounted deflectors.

Figure 5-2: Positions 4 thru 6
Working Height (Fig. 5-3 & 5-4)

Proper deflector working height ensures an even product distribution. After calculating deflector spacing, use the table below to find minimum working height.

<table>
<thead>
<tr>
<th>Deflector Spacing</th>
<th>Deflector Vertical</th>
<th>Deflector Horizontal</th>
</tr>
</thead>
<tbody>
<tr>
<td>19 to 24 in.</td>
<td>12 in.</td>
<td>18 in.</td>
</tr>
<tr>
<td>25 to 30 in.</td>
<td>12 in.</td>
<td>20 in.</td>
</tr>
</tbody>
</table>

WORKING HEIGHT DEPENDS ON DEFLECTOR POSITION. See Figure 5-3 and Figure 5-4. Measure working height from the lower edge of the deflector plate to the ground surface with the implement shovels lowered into the soil to the required working depth. Field conditions may affect working height. High trash cover or rough field conditions require an increase in working height.
Deflector Mounting (Fig. 5-5, 5-6, 5-7)

Deflector Mounting Hardware is designed to be used in one of three basic combinations:

1. DEFLECTOR BRACKET Only,
2. DEFLECTOR BRACKET with MOUNT CHANNEL,
3. DEFLECTOR BRACKET with MOUNT CHANNEL Bridge.

The following pages illustrate various configurations for deflector installation. Study them carefully and choose a configuration that mount channels directly to the structural frame of an implement.

Use gear clamps to install deflector brackets or mount channels directly to the structural frame of an implement. When clamping to some structural frames, two gear clamps must be fastened together. Use the table below to find the combination required for your applicator installation suits your implement.

<table>
<thead>
<tr>
<th>Frame Size</th>
<th>Clamp #</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>618</td>
</tr>
<tr>
<td>1.25 X 1.25</td>
<td>X</td>
</tr>
<tr>
<td>3 X 3</td>
<td>X</td>
</tr>
<tr>
<td>4 X 3</td>
<td>X</td>
</tr>
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<td>4 X 6</td>
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</tr>
<tr>
<td>6 X 8</td>
<td>X</td>
</tr>
<tr>
<td>7 X 7</td>
<td>X</td>
</tr>
<tr>
<td>8 X 8</td>
<td>X</td>
</tr>
</tbody>
</table>

Note

When initially installing deflectors, clamp them loosely to the deflector brackets. When installing the delivery hoses, push the hose over the deflector tube until it hits the deflector. Ensure that the deflector is level, then tighten the gear clamp.

When installing the hoses onto the venturis, tap the first few inches of the hose to create an oval. This will slip onto the venturi easier.
Generally the **first step is to mark all the deflector positions on the implement**. Hardware can then be allotted to each deflector position and fastened into place using one of the following combinations:

1. **DEFLECTOR BRACKET Only**

   Place deflector bracket centered over marked position. Clamp deflector bracket in place using assembled gear clamps as shown in Figure 5-5.

   Attach the deflector to the deflector bracket using a #200 gear clamp. Set the tube of the deflector into the notches and clamp through the center of the deflector bracket.

2. **DEFLECTOR BRACKET with MOUNT CHANNEL**

   Use the Mount Channel to extend the deflector bracket position forward as shown in Figure 5-5. This is necessary when mounting near an obstruction that limits hose routing possibilities or to extend the deflector mounting position ahead of an obstruction.

   Clamp the Mount Channel to the implement using the assembled gear clamps (The Mount Channel can be trimmed to the most suitable length). Bolt the Deflector Bracket to the Mount Channel using the 1/4 inch fasteners provided.
3. **DEFLECTOR BRACKET with MOUNT CHANNEL Bridge**

Use a Mount Channel Bridge to extend a Deflector Bracket forward (Figure 5-6) or sideways (Figure 5-7). A Mount Channel Bridge can be used to straddle an obstruction or offset a deflector to one side.

Use gear clamps to fasten two Mount Channels to the implement. Bolt a third Mount Channel in place using 1/4” fasteners. Fasten the Deflector Bracket to the desired location along the third channel.
**Delivery Hoses**

The delivery hose is supplied in bulk coils and must be cut to fit your implement. For additional instructions for harrowbar mounting, see Chapter 7. No matter where you mount your hoses, keep in mind the following guidelines when doing so:

1. Cut and install delivery hoses STARTING WITH THE LONGEST HOSE and working down to the shortest.

2. Allow ample length for smooth radius curves. Remember, the extreme situation may be when the implement is folded. Be sure to allow enough hose for all implement positions.

3. Avoid routing hoses into areas where they could be pinched or kinked.

4. Push the hose onto the deflector all the way for a reliable friction fit as shown in Figure 5-7. Install hoses to the deflectors before clamping them tight to the Mount Brackets. If possible, clamp the delivery hose with the deflector.

5. Secure the hoses to the implement with plastic tie straps. Two different sizes of tie straps are provided depending on the size of the hose bundles.

6. Raise the implement and fold in and out of transport to ensure that the hoses do not snag or kink.

---

**CAUTION!**

Hoses are brittle below -10 °Celsius (14 °Farenheit)
Do not move implement in temperatures below -10 °Celsius. Hoses may crack.
6 - Cultivator Installations

Introduction
The following sections are examples of deflector installations on three different field cultivators. These examples will give you a good idea of how to install your own cultivator even if it is not one of the models included here.

Borgault 8800
The two pictures in Figure 6-1 show deflectors on the cultivator wing mounted directly to the frame using the deflector bracket. One deflector (indicated by arrow) was offset to overcome a conflict with the wing hinge. Figure 6-2 shows the end deflector mounted vertical to clear the castor wheel.

Figure 6-1: Deflectors on Wing.

Figure 6-2: End Deflector Behind Castor Wheel
Flexicoil 820 (Fig. 6-3 & 6-4)
Deflectors were mounted directly to the frame using the deflector bracket. Depending on the deflector spacing an interference may occur at the floating hitch - cultivator connection. If this occurs the deflector may be moved backward to the location in Figure 6-3 or a mount channel bridge may be used to position the deflector ahead of the hinge.

**Figure 6-3:** Deflector in Line with Floating Hitch Hinge.

**Figure 6-4:** Flexicoil 820 Deflectors on Wings.
John Deere 610
Where possible the deflectors were mounted directly to the frame using the deflector brackets (Fig. 6-5).

A mount channel bridge was used to install the centre two deflectors (Fig. 6-6).

The three photos that make up Figure 6-7 on the next page show the five end deflectors. Mount channel bridges were used to extend the two end deflectors sideways to their designated positions (1 & 2). A mount channel was clamped directly to the frame to position the third deflector from the end (3) behind the castor wheel. A mount channel bridge was used to step around a frame connection for the fifth deflector from the end (4).
Figure 6-7: Top View of End Five Deflectors - John Deere 610
7 - Harrow Bar Installations

Routing Delivery Hoses on Harrow Racks (Fig. 7-1)

Plan your harrowbar mounting to keep the hoses in an orderly flat layer as shown in Figure 7-1 (The hoses are shown as dotted lines). Mount the hoses with the harrowbar in field position.

For most efficient use of the hose, route it as close to the front of the harrow racks as possible. The hose should run straight back from the hopper and only begin the curve after it is over the main beam. Be sure to route the hose in a generous radius around the main hinge so there is enough slack to fold into transport position.

![Figure 7-2: Routing Hoses on Harrow Racks](image-url)
Delivery Hose Installation

Install the hoses as follows. Refer to pages 28 thru 30 for a general overview of typical hose mounting schemes.

1. Install 1 1/4" Square Tubing (Fig. 7-2)

If the delivery hoses sag between the rear base tube and the harrowbar main tube when in transport position, it may be necessary to install a length of 1 1/4" square tubing to support the hoses. Use two # 400 gear clamps to secure two slotted channels to the rear base tube of the hopper. Clamp the 1 1/4" tube across the channels using a # 200 clamp.

2. Set Hoses onto Harrowbar

Route the hoses along the top of the harrowbar. Make sure they are clear of any linkages. Install the longest hose first, and connect it to the venturi. Repeat for all remaining hoses.

3. Install Channels and Chains (Fig. 7-3)

The 23" long channels are used to clamp the hoses in a flat bundle near the hinge point. The chains allow the hoses to swing freely about the hinge point while in the transport position. Use the expanded end links of the chain to attach it to a tine bolt, or wrap the chain around a frame member to hang the hose bundle.

4. Install "C" Clamps (Fig. 7-4)

Install the "C" Clamps over the hose bundles as required to hold the hoses flat against the harrow sections. Use the larger Clamps near the center section and the smaller ones at the ends, depending on how many hoses need to be bundled. Each "C" Clamp may be installed with hose clamps as shown.
5. Checking Clearances

Once all clamps and channels are installed, fold the harrowbar a few times to ensure that all components fit without any interference. Adjust the channel and chain positions if necessary.

6. Final Assembly

Trim the delivery hoses and install the deflectors as detailed in Chapter 5.
Figure 7-6: Delivery Hose Mounting

- Channels & Chains
- "C" Clamps
Flexicoil Installations

The following photos show typical mounting schemes for Flexicoil heavy harrows.
These instructions are for mounting a 3255 Valmar hopper on an 82’ Degelman Strawmaster harrowbar. These instructions are to be used in conjunction with those found in the 55 series Assembly and Installation Manual.

1. Push one base tube extension through each hopper base tube so that the base tube extensions protrude on the platform side of the hopper by the distance shown (16 inches).
2. Fasten the hopper to the four mount brackets using U-Bolts, flatwashers and nylon insert locknuts.
3. Ground Drive
4. Spring assembly detail.
5. Route the wheel drive lift cable to the bolt on the harrowbar center section shown in the following photo. This will ensure that the wheel drive lifts when the harrow is folded.

6. Connect the sprockets with #2040 chain.
7. Install the various lengths of 1 ¼" square tubing.
8. Install the deflectors. Space them according to the diagram on page 9. Do not install the delivery hoses on the deflectors yet.
9. Fasten the delivery hoses to the harrowbar with hose channels. Attach the hose channels to the harrow springs. Pages 9 and 10 illustrate the lengths of channel that go on each spring in order of size. Attach the hoses to the venturis at this time. Install the longest hoses first.
OFFSET DEFLECTOR TO AVOID SPRING

DEFLECTOR EXTENSION MOUNT
10. Once the delivery hoses are clamped between the hose channels, fold the harrowbar a few times to check for snagging. Adjust the position of the hoses as necessary.

11. Trim the delivery hoses and attach them to the deflectors.

12. Install the hoses for connected the hydraulic fan drive to the tractor remotes as shown below.

13. After hookup, operate the hydraulic fan drive at low speed for 15 minutes to purge any air and break in the hydraulic motor. **Failure to do so may result in damage to the hydraulic motor.**
14. Install the control unit by connecting the power cable (the cable with the ring terminals) to the battery. The WHITE wire connects to the POSITIVE terminal and the BLACK wire connects to the NEGATIVE terminal.

![Diagram of control unit wiring]

15. Connect the control unit wiring harness to the applicator harness.

16. Switch the control unit on. Set the selector switch to “BOTH”. The clutch halves should lock together instantly. If not, consult the Troubleshooting and Adjustments and Service sections of the Operator’s Manual.