Service Instructions

SYNTRON® Rotary Vibrator Screen
General Description
Model “RVS” Rotary Vibrating Screens are ruggedly constructed units, designed to sift, separate, classify or scalp various materials by size. The assembly is fabricated to provide maximum screen area with minimum drive and power requirements.

The basic machine consists of a heavy-duty frame, a single or multiple-deck screen, a powerful self-contained drive unit and built-in vibrator isolators using coil springs. Refer to Figure 4 for the assembly drawing of an “RVS” unit.

Installation
Handling the Vibrating Screen
The screen assembly and controller, when received, should be carefully uncrated. All packing bands, paper, etc., must be removed.

Note: DO NOT REMOVE THE RUBBER COVERING THE TRANSVERSE SUPPORT OF THE SCREEN, THIS IS PART OF THE SCREEN ASSEMBLY!!

Give the equipment a thorough visual inspection for damage that may have occurred during shipment. Check for loose hardware. Examine the controller (if supplied) for loose or broken wiring and loose hardware.

In most cases, the machine is shipped from the factory on skids. These skids should remain on the unit just prior to mounting in its permanent location.

Note: NEVER LIFT THE UNIT BY THE ROTARTY DRIVE ASSEMBLY. When transporting the unit to its mounting location, FMC TECHNOLOGIES INC. recommends that chain or cable be looped around the frame at both the front and rear of the machine. The hoisting chain should be located adjacent to the vibrator isolator mounting points.

NEVER MAKE ANY ALTERATION OR ADDITION TO THE VIBRATING SCREEN ASSEMBLY WITHOUT FIRST CONTACTING THE SERVICE DEPARTMENT OF SYNTRON MATERIAL HANDLING, TUPELO, MS 38802. Alterations, extensions, or additions to the assembly could result in poor operating performance of this unit.

IMPORTANT: The unit must never come in contact with any rigid object or adjacent surface that could hamper its vibrating action. The only contact between the vibrating screen and the support structure would be at the four mounting locations.

A minimum clearance of 1 1/2” must always be maintained between the screen assembly and adjacent structure. Any connections (such as dust seals between the screen assembly and adjacent structures must be flexible, preferably cloth or rubber.

The weight of an “RVS” Screen is measured in pounds under full operating load conditions, thus, particular attention must be given to the area of support. The screen assembly can be provided for either base or suspension mounting.
Base-Mounted Units
The supporting structure must be adequately braced and capable of supporting the screen under load conditions. SYNTRON MATERIAL HANDLING recommends support structures designed of concrete or steel. WOOD STRUCTURES ARE NOT RECOMMENDED!

IMPORTANT: The support structure must be level at all four mounting location points of vibration isolators. See Figures 1 and 2 for typical installations.

WARNING: For the safety of operating personnel MAKE SURE THE CONTROLLER IS PROPERLY CONNECTED TO AN EFFICIENT GROUND.

Slope
Unless otherwise specified, all "RVS" Screens are designed and constructed with a 20° downslope. Some bases mounted models are furnished with an adjustable isolator mounting bracket. Other models are equipped with permanent positioned isolator brackets and the downslope cannot be varied. The angle of slope on suspended units can be changed by varying the length of suspension cable.

LUBRICATION
The only required lubrication points are in the Rotary Vibrator Drive Unit. See lubrication schedule as outlined in the separate instruction manual for the vibrator.

OPERATING PROCEDURE
With the equipment in its final operating position and all mounting and electrical connections secure, the vibrating screen is now ready for operation.

The rotary vibrator motor is energized by simply closing the 3-pole line switch and pushing the “Start” button to its “ON” position. The centrifugal force of the rotating eccentric weights in the drive unit will induce a vibrator action on the screen assembly.

The operating amplitude of vibration can be varied by adjusting the position of the eccentric weights of the rotary drive unit as outlined in the separate instructions for the rotary vibrator.

MAINTENANCE
The Drive Unit
A separate maintenance manual covers the necessary care of the Rotary Vibrator Drive Unit with instructions relative to lubrication, repairs, etc.

The Screen Panel
The screen panel is clamped to the sides of the trough be tension plates. The tension plates run the full length of the screen panel and contain carriage bolts with adjusting nuts located outside the frame.

To remove the screen panel, loosen the tension plate adjusting nuts on both sides of the unit. In most cases, the tension plates will not require removal. Remove screens by pulling the screen panel out of either the front or rear of the unit by sliding along the tension plates. Refer to Figure 3.
New panels are installed in a similar manner – sliding into position along the tension plates. When screen is in position, centered from side to side and lengthwise, tension should first be applied to the center fasteners working towards the ends. When removing or installing screen panels, keep edges parallel with side of machine to prevent binding. While screen panel is off, carefully examine rubber covered supports for signs of wear and replace rubber if necessary.

Special applications may include electrically heated screen panels. These are particularly effective when handling moisture laden materials. Complete installation, operating and maintenance instructions for the electrically heated screen panels are furnished in a separate manual.

The following maintenance checks should be made periodically:

1. Maintenance of the Rotary Vibrator Drive Unit is covered in a separate manual supplied with the drive unit.
2. Rotary Vibrator mounting bolts must always be tightened to the proper torque. Refer to the instruction manual supplied with the vibrator.
3. Keep screen panel tight by adjusting tension plates as needed.
4. Check rubber cover on the transverse supports. Replace as required. If rubber is worn, exposed steel ribs could damage the screen panels.
5. Check coil springs isolators for signs of wear or damage, replace if damaged or badly worn.
6. Check feed box intake for signs of wear at material impact areas.
7. Check for damage or badly worn screen panel, replace if necessary.

**TROUBLE SHOOTING**

With the exception of apparent trouble, such as broken springs, of torn screen panel, the Rotary Vibrator Drive Unit is the only component requiring a trouble shooting check list. In nearly every case, any drive unit malfunction will increase the operating current and the overload protective heaters will open. This will de-energize the rotary vibrator drive unit.

The separate instruction manual for the Rotary Vibrator contains a complete listing for trouble shooting procedures.
Figure 1 - TYPICAL INSTALLATION, SINGLE DECK SCREEN

Overhead Isolators for suspension system only

Support Beam (supplied by customer)

Suspension Cables (supplied by customer)

Isolators on base mounted units only

Figure 2 - TYPICAL INSTALLATION, MULTIPLE DECK SCREEN

Overhead Isolators for suspension system only

Support Beam (supplied by customer)

Suspension Cables (supplied by customer)

Isolators on unit for base mounted systems only

Spacing Bar, when used (Supplied by Syntron)

Hangers used on suspension mounted units (contains no isolators built into unit)
Base mounted units are bolted to the support structure using holes provided in the support base plate of the vibration isolators. Quantity of isolators and number and size of mounting holes vary with the design and size of screen. Check the outline drawing for the correct location and dimension of mounting holes.

Check the following points before installing the base mounted unit:

1. Is the foundation of sufficient strength to carry the full weight of the unit under full load conditions?
2. Are the mounting locations of the support structures parallel and spaced to accommodate screen support plates?
3. Are mounting point locations level?
4. Are mounting holes (or bolts) located to coincide with mounting holes of the screen unit?

Suspension-Mounted Units
The basic screen design for suspension mounting is similar to base mounting with the exception of the location of vibration isolators. Suspension mounted units are equipped with hanger assemblies located at the same four locations as the isolators on base mounted units. The vibrator isolators are mounted overhead on customer’s steel beams. Suspension cables are then connected between the overhead isolators and the hanger assemblies on the machine. The overhead support beam must be selected with the same precaution as mentioned in the base mounting section of these instructions.

Figures 1 and 2 illustrate typical installations for single and multiple screen unit installations.

MOUNTING RODS ARE NOT RECOMMENDED!! SYNTRON MATERIAL HANDLING recommends the use of steel cables for support of suspension mounted units.

IMPORTANT: THE POWER SUPPLY VOLTAGE AND FREQUENCY MUST MATCH THE INFORMATION STAMPED ON THE NAME PLATE!!

Most units are equipped with a 3-pole, line switch operated, manual reversing controller. Wiring connections for this controller are explained in the Rotary Vibrator Instructions furnished as a separate booklet.

Some units, especially the heavy duty models and dual vibrator models, are furnished with a “plugging” type control to provide electrical “braking” of the Rotary Vibrator drive motor(s). This circuit is furnished in a separate control cabinet and is explained elsewhere in this manual.

Wiring connections to the Rotary Vibrator are also explained in the separate instructions manual for that assembly.

All electrical cables extending for the Vibrating Screen Assembly should have a 12” vibrating loop between the screen and nearest attachment.

All wiring connections must be securely made and in strict accordance with the wiring schematic furnished with the controller. If the motor is operating in the opposite direction as required, reverse any two of the motor leads to reverse the direction of the motor.
Figure 4 - ROTARY VIBRATOR SCREEN ASSEMBLY

- Support Frame Mounting Hardware
- Intake Section (Feed Box)
- Tension Plate Adjusting Hardware
- Screen Frame Mounting Hardware (Not used on welded units)
- Adjusted Coil Spring Vibration Isolators and Mounting Plate
- Screen Cloth Tension Plate
- Screen Cloth Mounting Hook
- Screen Frame
- Screen Cloth (As specified)
- Transverse Support Rib w/Rubber Cover
- Longitudinal Support Rib
PLUGGING-TYPE CONTROL
Many Units (all dual vibrator-drive types) are equipped with a special “plugging” control circuit housed in a separate enclosure. The circuit is designed to provide a quick-controlled stopping action of the drive unit motor. This will eliminate any excessive jolting or churning of the rotary vibrator drive as it settles to a stop. The controller contains a “FORWARD-REVERSE” combination starter with the reverse control wired in series with a time delay contact. When the “STOP” push button is depressed, the rotary drive motor is signaled to run in the reverse direction of its normal operating rotation. This signal is applied momentarily to “brake” the drive motor just prior to stopping.

When used with an “RVS” Screen, the plugging controller should always be used to start and stop the unit. Only in case of an emergency should a line switch ahead of the controller be used to de-energize the unit.

![Diagram of PLUGGING-TYPE CONTROL](image)

Figure 5 - PLUGGING-TYPE CONTROL

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pneumatic Time Delay</td>
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<tr>
<td>2.</td>
<td>Overload Relay Kits</td>
</tr>
<tr>
<td>3.</td>
<td>Forward Contactor</td>
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<tr>
<td>4.</td>
<td>Reverse Contactor</td>
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<tr>
<td>5.</td>
<td>“Start-Stop” Push Button</td>
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<tr>
<td>6.</td>
<td>Terminal Block</td>
</tr>
<tr>
<td>7.</td>
<td>Ground Terminal</td>
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Specify complete nameplate data when ordering parts!
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