



!!!DANGER!!!

**DO NOT USE THIS EQUIPMENT TO
PURGE TOXIC OR FLAMMABLE GAS**

AND

**DO NOT USE THIS EQUIPMENT UNDER
FLAMMABLE, VOLATILE OR TOXIC
ENVIRONMENTAL CONDITIONS**

VST-9

CYLINDER TUMBLER

INSTRUCTION MANUAL



MANUAL NUMBER 21-11-1021

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VST-9 Cylinder Tumbler Instruction Manual

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VST-9 Cylinder Tumbler Instruction Manual

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**FOR YOUR SAFETY
PRIOR TO OPERATING EQUIPMENT
READ AND THOROUGHLY UNDERSTAND ALL INSTRUCTIONS**

1.0 INTRODUCTION

The Galiso VST-9 unit is a multi-purpose, reversible, single cylinder tumbler. The unit features a pivoting cylinder rack to facilitate cylinder loading. The VST-9 is typically used in one of the following applications:

1. Tumbling cylinders filled with abrasive media and/or chemicals as a means of cleaning the cylinder interior.
2. Used in conjunction with the Galiso ISB shot blasting system to provide air-powered blasting of the cylinder interior with steel shot.
3. The cylinder rolling capability can be used for mixing gases in cylinders filled with multiple gas constituents.

This manual discusses the installation, operation, and maintenance requirements for the VST-9 unit . See Galiso document 21-11-1019 for information on the Galiso internal shot blasting system.

1.0

2.0 SPECIFICATIONS AND OPERATING DATA:

2.1 Specifications

A side view of the VST-9, with cylinder in tumbling position, is shown in figure 2-1. Specifications for the standard VST-9 system are as follows:

Electrical Requirements: 115 VAC, single phase, 60 Hz, 5.7 FLA;
190-230 & 380-460 VAC, three phase, 50/60 Hz,
1.5 FLA @230 VAC, 0.75 FLA @ 460 VAC

Maximum Cylinder Size: 10.5" dia. X 60" Tall

Dimensions: 62" (max.) Tall x 61" (max.) long x 16" wide, see figure 2-1

Weight: 200 lbs (uncrated)

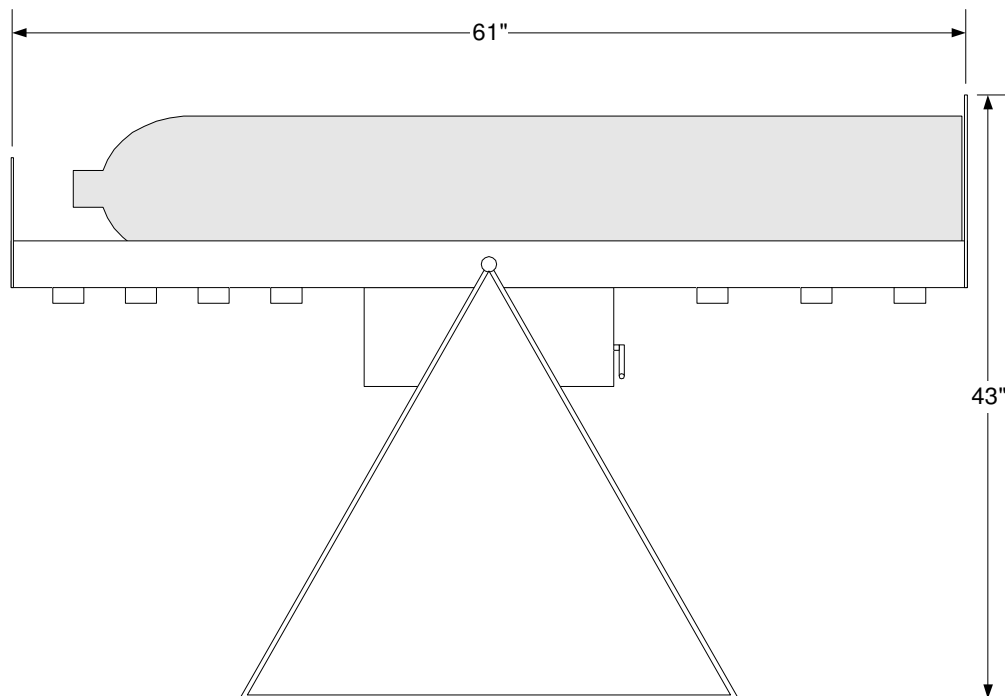


Figure 2 - 1

2.2 Operating Data

- Positions:**
- A. Cylinder Loading (vertical, upright)
 - B. Cylinder Tumbling (horizontal)
 - C. Cylinder Draining (330° from vertical upright)

Cylinder Roller Speed: 144 rpm (120 rpm @ 50 Hz), forward or reverse

Position Latch: Spring loaded, pull to release

2.3 Equipment Options

Table 2 - 1 VST-9 Options

Galiso Part No.	Power Required
25-54-9544	115 VAC, Single Phase, 60 Hz.
25-51-9076	190-230 VAC, 3 phase, 50/60 Hz
25-XX-XXXX	380-460, three phase, 50/60 Hz

3.0 SAFETY

Read all instructions before attempting to install or operate the VST-9. GALISO INC. IS NOT RESPONSIBLE FOR DAMAGE OR INJURY CAUSED BY UNSAFE USE, MAINTENANCE, OR APPLICATION OF THESE MACHINES. Please contact Galiso for guidance when you are in doubt regarding the proper safety precautions to be taken when installing or operating these machines.

3.1 Personnel Safety



CUSTOMER ASSUMES ALL RISKS, HAZARDS AND LIABILITIES ASSOCIATED WITH USE OF CYLINDER CLEANING CHEMICALS AND MEDIA. ALWAYS FOLLOW MANUFACTURERS INSTRUCTIONS WHEN MIXING AND USING CYLINDER CLEANING CHEMICALS AND MEDIA.

- A. Goggles, face shield, ear protection, gloves and respiratory protection must be worn when preparing or operating the VST-9 tool.
- B. Establish, label and maintain a clear area surrounding the VST-9 unit sufficient to provide protection for shop personnel.
- C. Ensure that a properly grounded electrical supply is used to power the VST-9 unit.
- D. Keep all loose clothing, long hair, jewelry, etc. away from VST-9 rotating parts and pinch points.
- E. Use only properly vented plugs to maintain tumbling media within cylinder(s).
- F. Always verify that the cylinder tumbling rack is latched in place before loading, tumbling, draining or unloading cylinders.



USE OF IMPROPERLY VENTED CYLINDER PLUG(S) COULD CAUSE A DANGEROUS PRESSURE BUILD-UP WITHIN THE CYLINDER RESULTING IN EQUIPMENT DAMAGE, SEVERE PERSONNEL INJURY OR DEATH.

3.2 Equipment Precautions

To increase unit life, and maintain proper safety feature operation of the VST-9, keep the assembly clean and dry. Report any malfunctions, or minor repairs needed, to your supervisor or Safety Officer at once. With proper attention, years of trouble free, reliable service will be provided by the Galiso VST-9 System.

- A. Always allow the cylinder tumbling drive shaft to come to a complete stop when switching tumbling directions.



Failure to allow the cylinder tumbling drive shaft to come to a complete stop when switching tumbling directions can result in severe equipment damage.

4.0 INSTALLATION

Read all instructions before attempting to install or operate the VST-9 unit.

4.1 Receiving and Placement

- A. Carefully uncrate the VST-9 and remove all packing materials.
- B. Select a suitable location for the VST-9, and mark off an adequate safety zone.
- C. Move the equipment to the installation location, and bolt or clip the base of the unit to the shop floor.

NOTE:

The cylinder roller rack should be level when in the horizontal position.

4.2 Utilities

Verify the voltage requirements for the unit received, see Section 2.3 Equipment Options for available voltages. Verify that the Directional Control Lever is in the OFF position and plug the cord supplied into an appropriate, grounded power receptacle (115 VAC single phase only). See Section 4.3, Field Wiring for 190-230 and 380-460 VAC, three phase wiring installation requirements.

NOTE:

Installation of an emergency off switch in close proximity to the VST-9 unit is recommended.

4.3 Field Wiring

The 190-230 VAC and 380-460 VAC three phase models will need to be wired at the installation location. Refer to the VST-9 Electrical Schematic, Galiso, Inc. document 21-91-1021 , attached, as necessary. Proceed as follows to complete field wiring.

NOTE:

Electrical installation should be performed by qualified personnel only and should comply with all applicable codes and standards.

- A. Connect the Red, White, Black and Ground wires provided to the appropriate electrical supply .
- B. Alternatively, the cord supplied may be wired to an appropriate plug for use with a mating power receptacle.

5.0 OPERATIONS

The following sections describe use of the VST-9 for abrasive and chemical cleaning of cylinders and mixing of gasses. Refer to the ISB System manual, Galiso document 21-11-1019, for details regarding internal cylinder shot blasting.



CUSTOMER ASSUMES ALL RISKS, HAZARDS AND LIABILITIES ASSOCIATED WITH USE OF CYLINDER CLEANING CHEMICALS AND MEDIA. ALWAYS FOLLOW MANUFACTURERS INSTRUCTIONS WHEN MIXING AND USING CYLINDER CLEANING CHEMICALS AND MEDIA.

5.1 Cylinder Tumbling

Proceed as follows to perform cylinder cleaning;

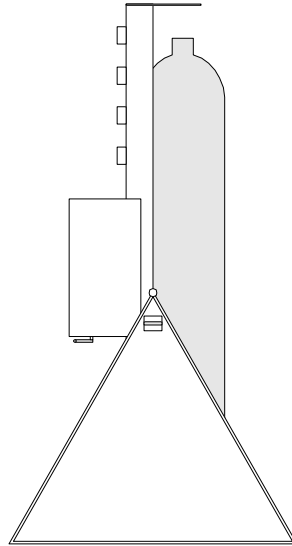
- A. Fill the cylinder to be cleaned at least ½ full with the desired cleaning chemical(s) and/or abrasive media.
- B. Install a vented plug in the cylinder neck. This will prevent the cleaning chemical(s) and/or abrasive media from draining out during tumbling and prevent a potentially dangerous buildup of pressure in the cylinder.
- C. Verify that the directional control lever is in the OFF position and that the cylinder tumbling rack is latched in the vertically upright (cylinder loading) position.

NOTE:

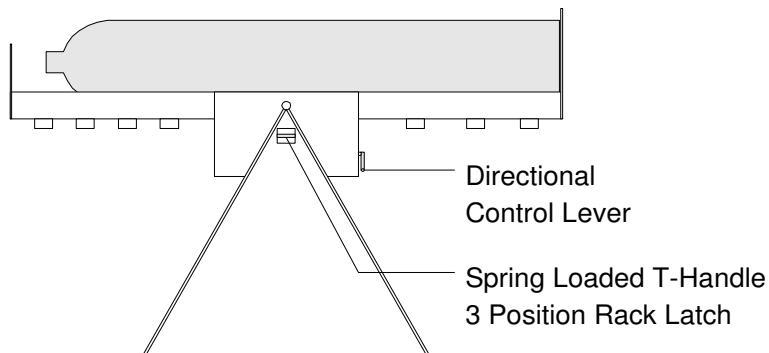
The latch is spring loaded and should automatically latch into each of the three positions. Pull on the T-handle to disengage the latch.

- D. Load the prepared cylinder in to the cylinder tumbling rack, see figure 5-1.

5.1 Cylinder Tumbling, continued

**Figure 5 - 1: Cylinder Loading Position**

- C. Pull the latch handle and rotate the tumbling rack with cylinder to the horizontal (tumbling) position, verify that the rack latch re-engages. See figure 5-2.
- D. Move the directional control lever to either the FORWARD or REVERSE position to begin rotating the cylinder.
- E. Allow the cylinder to rotate (tumble) for approximately 30 minutes, or longer for severely corroded cylinders.

**Figure 5 - 2: Cylinder Tumbling Position**

5.2 Draining and Abrasive Media Recovery

Proceed as follows to drain and unload cylinders.

- A. Place the directional Control lever in the OFF position.
- B. Place a suitable strainer and/or waste receptacle beneath the cylinder drain position.
- C. Unlatch (pull) the rack latch and rotate the cylinder into the Drain position, see figure 5-3. Verify that the cylinder rack re-latches.
- D. Use an "L" or "U" shaped probe connected to a suitable water supply to flush out and rinse the cylinder.
- E. Unlatch the rack and rotate the cylinder to the Load/Unload position, verify that the rack is re-latched.
- F. Unload the cylinder.

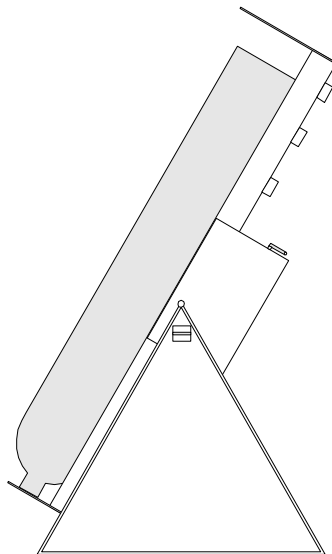


Figure 5 - 3: Cylinder Draining Position

5.3 Gas Mixing using the VST-9

Proceed as follows to mix gasses using the VST-9:

- A. Verify that the directional control lever is in the OFF position and that the cylinder tumbling rack is latched in the vertically upright (cylinder loading) position.
- B. Load the prepared cylinder in to the cylinder tumbling rack, unlatch the rack and rotate the cylinder and rack to the horizontal position. Verify that the rack re-latches.
- C. Move the directional control lever to either the FORWARD or REVERSE position to begin rotating the cylinder. Allow the cylinder to rotate (tumble) for the desired time period.
- D. To ensure proper mixing of gasses, reverse the direction of rotation occasionally during the mixing cycle. To reverse the cylinder tumbling direction, place the Directional Control Lever in the OFF position until cylinder rotation completely stops. Then switch the Directional Control Lever to the opposite direction.



Prior to mixing gases be sure to check cylinder valve for leaks and install valve protector cap



Failure to allow the cylinder tumbling drive shaft to come to a complete stop when switching tumbling directions can result in severe equipment damage.

6.0 MAINTENANCE

6.1 General

- A. The gear motor drive is lubricated at the factory and should not require lubrication. Refer to the manufacturers literature enclosed as necessary for additional gear motor information.
- B. Lubricate the rack pivot shaft bearings as necessary.

6.2 Spare Parts

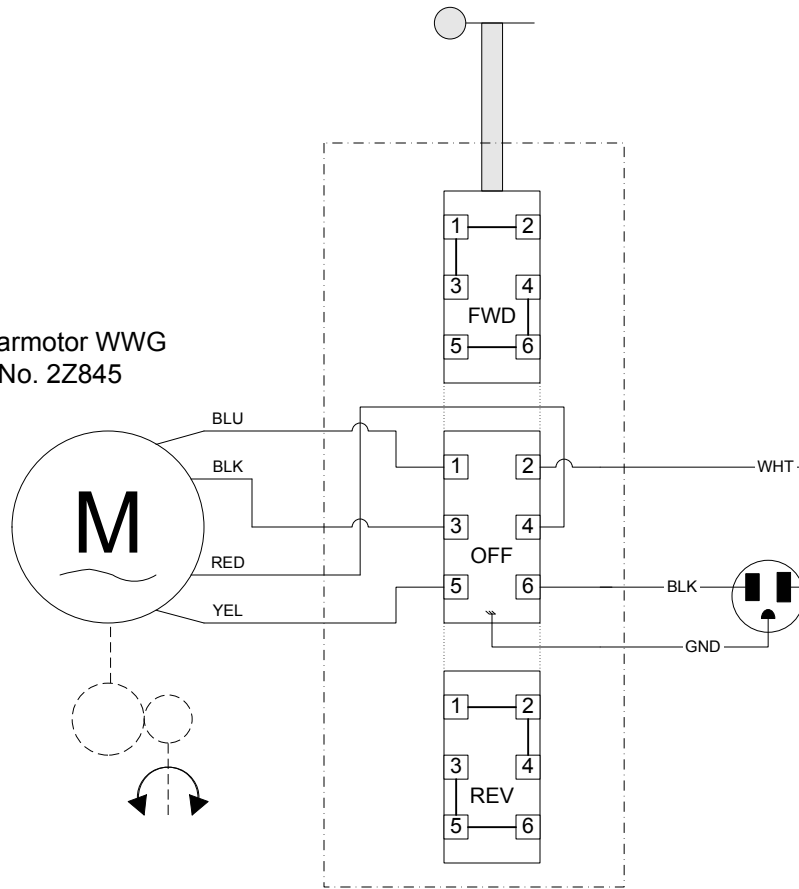
The following spare parts are available from the Galiso, Inc. Customer Service Department, call 800-854-3789.

Table 6- 1: Spare Parts

Galiso P/N	Description
25-44-9570	Roller Drive Shaft Ass'y, Sprocketed
25-41-9417	Idler Roller Shaft Ass'y
87-11-0012	Switch, 115 VAC
87-11-0038	Switch, 220/440 VAC

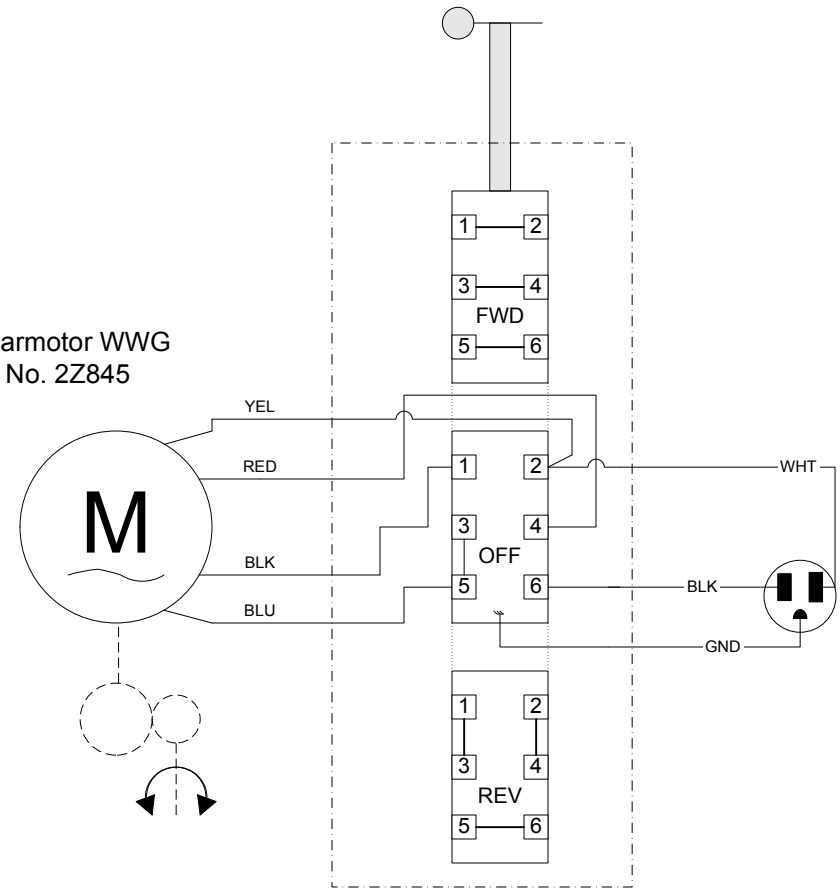
REV.	AUTHORITY	DATE	BY:
A	Redrawn From 25-92-9556	7/15/99	DST

Gearmotor WWG
No. 2Z845



3-Position Switch
WWG No. 2X440A

Gearmotor WWG
No. 2Z845



3-Position Switch
WWG No. 2X441A



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IN ACCORDANCE WITH ANSI
Y14.5

UNLESS OTHERWISE SPECIFIED,
DIMENSIONS ARE IN INCHES.
TOLERANCES:

X = ±
.XX = ±
.XXX = ±
ANGLES ±

SURFACE ROUGHNESS

APPROVAL	
SIGNATURE	DATE
DRAWN BY: DST	7/15/99
PRODUCTION	
ENGINEERING	
QUAL. ASSURANCE	

TITLE:
VST-9 Electrical Schematic
Single Phase Wiring

DRAWING NUMBER	REVISION	EXTENSION	SHEET
21-91-1021	A	VSD	1 OF 2



PRODUCT WARRANTY

1. **DURATION:** Galiso extends a one-year warranty from date of purchase, to the original purchaser, for all its manufactured products. For all spare parts purchases, Galiso extends the manufacturer's warranty or 90 days, whichever is longer. Soft goods parts, such as speed seals, washers, and O-rings, which are subject to wear in the normal course of operation, are not covered under this warranty. Collar Tooling products are warranted for six months.
2. **COVERAGE:** Galiso manufactured equipment is warranted against defective materials or workmanship. THIS WARRANTY IS VOID IF:
 - A) THE EQUIPMENT HAS BEEN DAMAGED BY ACCIDENT OR UNREASONABLE USE, IMPROPER SERVICE/MAINTENANCE, IMPROPER INSTALLATION, ABNORMAL OPERATING CONDITIONS, NEGLIGENCE, REPAIR BY ANY PERSON NOT AUTHORIZED BY GALISO, INC. OR OTHER CAUSES NOT RELATED TO MATERIAL DEFECTS OR WORKMANSHIP.
 - B) THE SERIAL NUMBER HAS BEEN ALTERED OR DEFACED.
3. **PERFORMANCE:** Galiso reserves the right to make warranty determination only after inspecting the item at the Galiso manufacturing facility. If the warranty determination indicates that the defective item is covered under warranty, the item will be repaired or replaced with same parts/items or parts/items of equivalent quality, at the option of Galiso. In the event of replacements, the replacement unit will continue under the original equipment warranty or carry a 90-day warranty, whichever is longer. No charge will be made for warranty repairs, and/or replacements. All freight charges are the responsibility of the customer requesting warranty service.

If the warranty determination indicates that the item is not covered by warranty, a repair/replacement cost estimate will be submitted to the purchaser for approval prior to initiating any repair work.
4. **CLAIMS:** In the case of equipment malfunction, notify Galiso (1-800-854-3789) and provide the Model Name, Model Number, Serial Number and a description of the problem. Return Authorization Number, shipping and/or service information will be provided on receipt of the required information.
5. **SERVICE EQUIPMENT:** Galiso attempts to make available, whenever possible, a limited amount of service equipment at a minimal use charge, plus freight expense, for those customers wishing to avoid downtime during repair of their equipment. Such items are available on a first come, first served basis and are billable at the specific service charge applying with a one-month minimum.
6. **MODEL CHANGES:** Galiso reserves the right to make changes in materials and specifications, without notice. Galiso may offer, for a stipulated fee, the opportunity to upgrade your equipment to the latest configuration.
7. **DISCLAIMERS:** Galiso provides technical data and assistance to aid customers in the selection and use of our products. There are no implied warranties of merchantability nor suitability for a particular purpose associated with the transmittal of technical data and/or customer assistance.

Galiso does not assume liability for any consequential, incidental, or special damages. Liability under this warranty is limited to repairing, or replacing Galiso equipment items returned to the factory or an authorized facility.