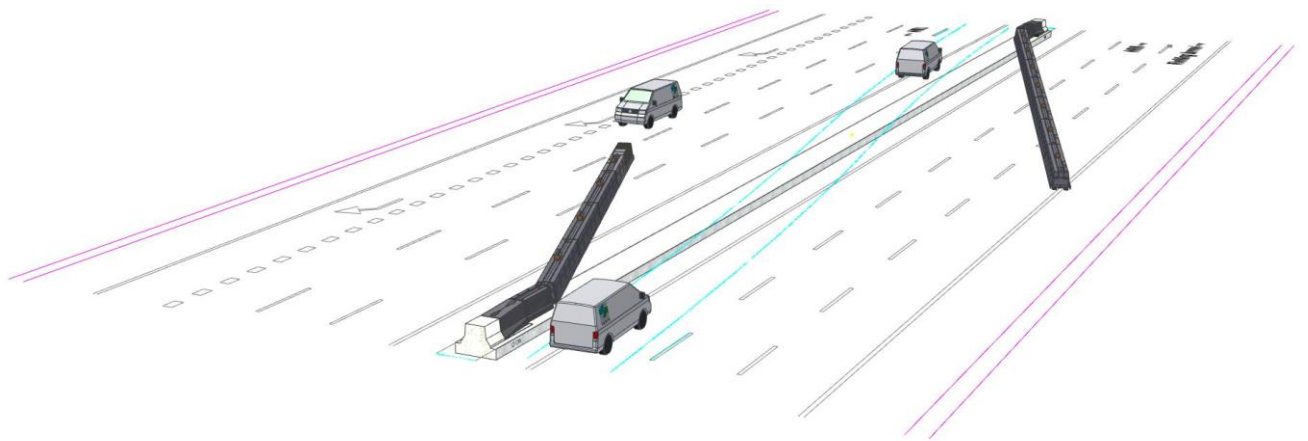


Maintenance Manual VEVA[®]



Jansen Venneboer

Maintenance manual VEVA®

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1 General

1.1 Introduction

This Maintenance Manual serves as a manual for safe maintenance of the VEVA system (movable crash barrier) and therefore is an integral part of the system. The maintenance manual should be retained up to the final life cycle phase of the VEVA - dismantling and disposal.

Careful use of this instruction warrants safe and responsible maintenance of the VEVA and ensures a maximum life-span of the installation.

1.2 Product Description

For a brief description of the VEVA system please see the Installation Manual.

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2 Maintenance

2.1 General

The VEVA is designed to minimize required maintenance. Regular maintenance activities can take place within 8 hours per year depending on VEVA size and climate conditions. (E.g. response time, clearance time, traffic regulations, emergency situations, extreme weather conditions excluded).

Before any maintenance activity is started, the VEVA should be switched to the 'maintenance mode' with the key switch on the control cabinet. Adjacent to that a 'clearance' signal should be provided by the parent system. (E.g. Traffic control centre) to guarantee safe traffic situations.

In the 'maintenance mode' the VEVA working area is limited to avoid the barriers from driving into the traffic flow. The limited driving distance can be adjusted and is set for the specific location during commissioning.



Maintenance should be carried out by experienced and skilled mechanics. Always ensure a safe working location according to local regulations and wear reflective safety clothing. Both lanes directly adjacent to the VEVA must be blocked for any traffic!

2.2 Periodic Maintenance

Activity	Frequency	Description of activities	Comment
Clean working area	Regularly	Remove large objects or snow to avoid blocking of the VEVA	E.g. Tires, hubcaps, car parts Do not plough snow against the VEVA.
Check functionality	2x / year	Start a complete run in the 'maintenance mode' and check for any failures.	In 'maintenance mode' the working area of the VEVA is limited.
Check emergency push button	2x / year	Push all emergency buttons and check message on screen in cabinet.	
Clean E-motor(s)	2x / year	Clean motors from any dust, rust and dirt	
Air compressor	2x / year	Check for any leaks. Replace oil when necessary, clean air intake.	Oil type: Piston Fluid (Atlas Copco)
Air dryer filter	2x / year	Check for pollution and replace if necessary	Filter type: 1503 0190 00 (Atlas Copco)
(moving) Lights	2x / year	Check functionality	
Cooling fan in cabinet	2x / year	Check functionality, damage and pollution. Replace if necessary	Filter type: 3mm insect mesh (Jansen Venneboer)
Air filter in cabinet	2x / year	Check for pollution and replace if necessary	Filter type: Air filter (Jansen Venneboer)
Cabinets and junction boxes	2x / year	Check for pollution and clean if necessary	

2.3 Inspection

Activity	Frequency	Description of activities	Comment
Check zinc/paint coating	2x / year	Check for scratches and rust. Repair directly	
Road pavement	2x / year	Check for holes or bumps.	The wheels and feet of the VEVA load the asphalt most.
Pneumatic components	2x / year	Check for any leaks	
Visual inspection of: - Concrete foundations - VEVA modules - Wheels - Feet	2x / year	Visual check all components and repair if any damage is discovered	These components wear very slowly. Most damage will be caused by traffic accidents.


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2.4 Maintenance log

After every periodic check the results and repair activity should be filled in on to the maintenance form. All these forms are bundled into the maintenance log.

A template maintenance form is attached. See next page.

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Maintenance form VEVA Location : Position : Identification : Date : Project :	Mechanic: Name: _____ Company: _____	 Jansen Venneboer
Activity:	Status:	Comment
1. <u>Air dryer:</u> - Visual inspection - Colour indicator (red / blue) - Filter check (OK / cleaned / replaced)	___ ___	
2. <u>Compressor:</u> - Check oil level - Check hoses - Filter check (OK / cleaned / replaced) - Cabinet pollution cleaned - Compressor pressure check Test by release pressure (open valve) Operating pressure (10 Bar) Safety valve pressure - Does compressor activate when $P_{work} < 7 \text{ Bar}$ - Air inlet filter (OK / cleaned / replaced) - Cooling fan check (OK / cleaned / replaced)	___ ___ ___ ___ ___ ___	Replace oil every 2 year Filter Bar Bar Replace filter every year
3. <u>Pneumatic cabinet in foundation module:</u> - Visual check - All components fixated properly? - Check for leaks - Check manual operation on valves - Check pressure during lifting process ($P_{max} = 6 \text{ BAR}$)	___ ___ ___ ___	Bar
4. <u>E-motor:</u> - Visual check	___	Fix any damage to coating
5. <u>Start test run in 'maintenance mode':</u> - Lifting - Lowering - Locking - Unlocking - Drive - Emergency stop - Check correct positions of arms	___ ___ ___ ___ ___ ___	
6. <u>Visual inspection:</u> - Concrete foundations - VEVA modules - Working area VEVA - Wheels - Feet	___ ___ ___ ___	Fix any damage to coating
7. <u>Locking mechanism:</u> - Visual inspection - Clean and lubricate	___	

Next maintenance date: _____

Mechanic signature: _____

Comments:

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3 End of service life

3.1 Life span

The VEVA is designed for a life span of 30 years. The life span is among others influenced by the amount of maintenance and mechanical load due to traffic accidents or weather climate. After every incident or collision when a vehicle has hit the VEVA it should be checked for proper functioning.

At the end of the service life the VEVA should be professionally dismantled and disposed. This should preferably be done by employees of Jansen Venneboer but can be done by local companies as well. The procedure for dismantling and transport is further described in this chapter.



Disposal should be carried out by experienced and skilled companies. Always ensure a safe working location according to local regulations and wear reflective safety clothing. Both lanes directly adjacent to the VEVA must be blocked for any traffic!

3.2 Dismantling



Caution! Always cut off electrical power to installation before starting any activities!

3.2.1 Preparation

- a. Contact the local road authorities before starting any activities. Discuss the work and make sure sufficient precautions are taken for safe work and traffic regulations.
- b. It should be ensured that there are various waste containers available, to separate the different sorts of materials. (Steel, electric cables, synthetic material, etc.)

3.2.2 Dismantling activities

- a. Cut off all electrical power to the installation
- b. Remove all electric components and wiring
- c. Remove all pneumatic components and hoses
- d. Disassemble the VEVA modules
- e. Remove the control cabinet incl. the compressor unit.
- f. Remove the foundation of the control cabinet
- g. Dispose all materials to the appropriate waste treatment companies

3.2.3 Lifting

- a. Lifting points on VEVA modules: remove the cover plates on top of the modules to find the two lifting eyes per module. Use secure lifting equipment.
- b. Lifting points on control cabinet: four lifting eyes on roof of cabinet.
- c. Lifting points on foundation: concrete lifting anchors type T-025-170 TV

3.3 Disposal

Removal of waste materials should take place in a safe and environmental-friendly way, without causing danger to humans and/or the environment.

Processing of waste material should be executed by an official waste treating company. Try to separate waste material in such a way that residues can be recycled as much as possible.

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4 Contact Information

This Maintenance Manual has been written with great care. For any questions please contact Jansen Venneboer.

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