

Securitex SBR120 & SBR121 Road Blocker

Technical Manual



Securitex Electronic Systems Engineering

Traffic Security Engineering division

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Introduction

The Securitex Road blocker SRB120 and SRB121 is a hydraulically control Road Blocker or some time call “vehicle stopper” system. This system control road passage. It can be used with parking system, bridges system, road leading into highly sensitively premises example: military bases, immigration checkpoint, oil, gas & nuclear facilities, power plant and even hospital etc. This road blocker can be used as standalone unit or as an integrated system with the access control system.

Type and Specification

At present Securitex distribute 2 type of road blocker system SRB120 and SRB121 both are hydraulic operated type.

SRB120 road blocker is a standard unit c/w flexible board width is 1800mm.

SRB121 road blocker is heavy duty unit c/w the flexible board width is 2700mm;

Function and Feature

- a. Construction of the system is extremely durable and robust. It can take a weight equal to 40 tons long vehicle.
- b. Stable operation and low noise.
- c. Suitable for used in harsh environment
- d. System operated on low hydraulic pressure to ensure trouble free
- e. Minor and easy maintenance.

User interface to 3rd party access control or security system

When interface with our control system or 3rd party control equipments, this machine can be automatically control. From a card reader, wireless remote transmitter. From a PC and even through the internet (Optional interface are requires).

Emergency operation (Manual mechanical bypass)

Manual operation is built-in to allow manual operation in an emergency or when system malfunction. The flexible board can be lowered by hands to the ground level. All hydraulic system used in this road blocker is imported.

Technical Parameter and Road Blocker Capability:

SRB121 type can handle 40 tons container vehicle.

SRB120 type can handle all kinds of mid-small heavy vehicles.

System Drive: 1.5KW/380V

Starting time \leq 2S

Closing time \leq 4S

Work temperature: -25°C --- 65°C

Storage environment: -10°C --- 75

System is waterproof, damp proof and dustproof.

Shape and Construction

The whole road blocker are designed and manufactured in China under stringent Quality control and ISO9000 standards. These systems are specially designed by a team of highly qualified electrical and mechanical engineer base in the manufacturing plant in China Shenzhen. The machine structure are constructed and fabricated from high quality steel material. With very precision engineering and material specially selected from the best in the industries.

The SRB120 and SRB121 road blocker are basically divided into 3 parts

- a. Main frame and system steel structured
- b. Hydraulic drive system
- c. Electrical control system etc.

Main Frame structured

The main frame of this road blocker is made up of steel structured c/w driving parts and balancing system etc. The main machine is installed in the entrance and exit with flexible board leveled to the ground. High quality bearings and installed on all moving parts to reduce friction and premature wear and tear.

Hydraulic system

The hydraulic driving system is composed of 3 phase electric motor, hydraulic pump, hydraulic oil vessel, combination valve, oil tank and pipeline etc. Hydraulic driving system is installed on the “RIGHT” position for convenient of operation and maintenance.

Electrical Control system

The electrical control device/system provides the hydraulic system with power supply and controls the state of electromagnetic switch valve. Electric control system can be supplied by us or customized according to user. The whole control system, electric control box will be fixed in the position convenient for operation and control with waterproof and damp proof enclosure and fitting.

External dimension of the road blocker outside size

The external dimension of main frame of the hydraulic pressure road blocker is as figure 1 and chart A:

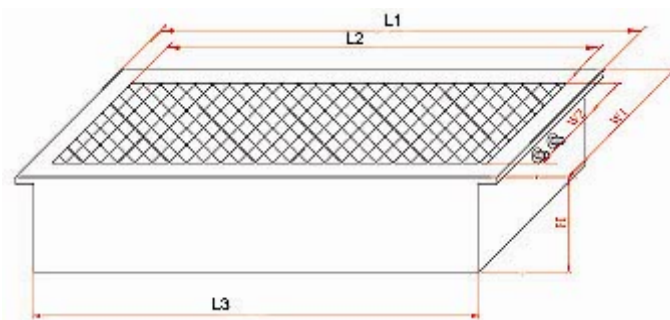


Figure 1

Chart A: The external dimension of the main frame structure of the road blocker

	L1	L2	L3	W1	W2	H
SRB120	2030	1800	1830	676	407	577
SRB121	2930	2700	2740	956	720	580

The external dimension of the hydraulic pump for the road blocker is as Figure 2 and chart B

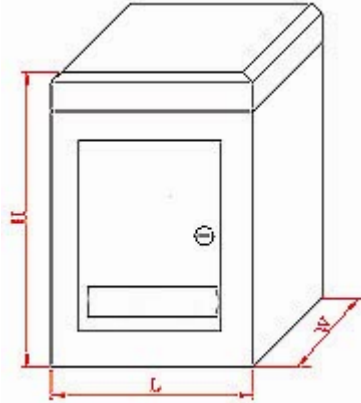


figure2

Chart B: The outside size of liquid pressure pump as follows

	L	W	H
JS120 型	650	400	950
JS121 型	650	400	1050

The electric box's outside size of standard configuration as Figure 3

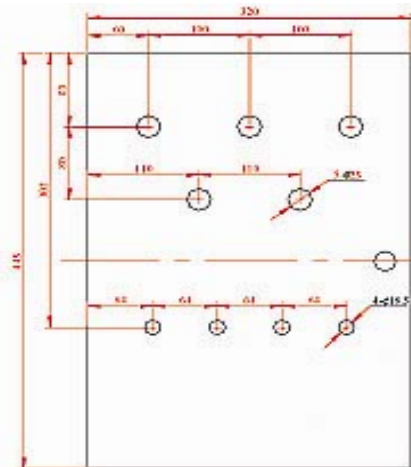


Figure 3

Operation procedure (Road Blocker main structure operation)

Figure 4 show the driving structure of the main frame

Figure 5 show the balance system structure of the main frame

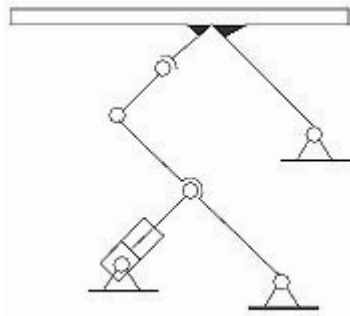


Figure 4

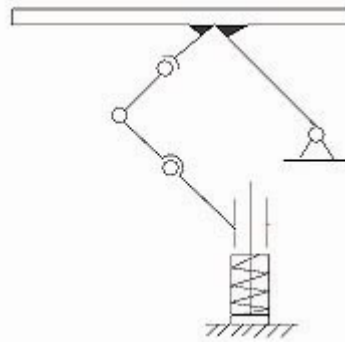


Figure 5

Liquid pressure system (The description on this section is still under improvement)

Figure 6 shows the working principal for the hydraulic system

The elements of liquid system as chart C

Chart C Liquid pressure system elements

Electrical control system for the Road Blocker system

Figure 7 shows the electrical layout for the control logic

Chart D shows the specification of the electrical control switch

The electrical box that contains all the relays and magnetic contactors are the main control of the road blocker hydraulic pump system. This control is connected directly to the SBR120/121 to independently control the road blocker up and down operation. The control has its connector to allows 3rd party intelligent controller to be interface to this system to form a complete intelligent and fully automated road blocker system

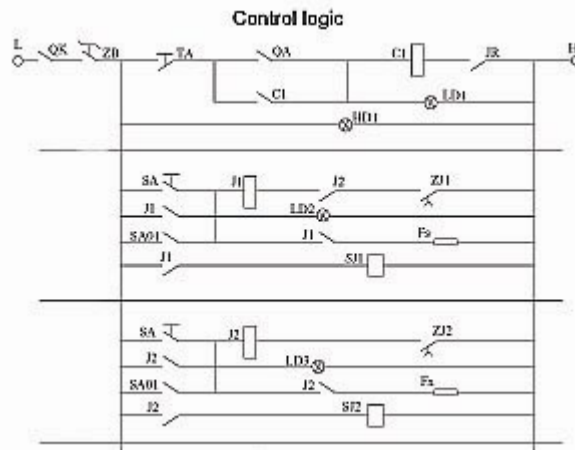


Figure 7

Chart D the elements chart of electric control

NO	Drawing mark	Description	Type/Specification	Place/Brand/Remarks
01	QK	Power switch of two times	C45NIP5A	
02	SB	Switch of main command	LAY4-01X/2 black	Tianshui 213 Machine Tool wiring factory
03	QA	Starting button	Fushi button(green)	(same with reader machine)
04	TA	Stop button	Fushi button(red)	(same with reader machine)
05	C1	AC contact device	LC1-D09	Tianshui 213 Machine Tool wiring factory
06	JR	Hot relay	LR1D0908	Tianshui 213 Machine Tool wiring factory
07	HD1	Indicator of main power supply	AD11-16/40 – 6G red	Jiangyin Changjiang Electrical Equipment Factory
08	LD1	Running indicator of oil pump electric motor	AD11-16/40 – 6G green	Jiangyin Changjiang Electrical Equipment Factory
09	LD2	Indicator of rising	AD11-16/40–6G	Jiangyin Changjiang Electrical Equipment Factory
10	LD3	Indicator of falling	AD11-16/40–6G	Jiangyin Changjiang Electrical Equipment Factory
11	J1	Control relay of rising	JZ18-44/2	The 4 th Electrical Equipment Factory of Guangzhou
12	J2	Control relay of falling	JZ18-44/2	The 4 th Electrical Equipment Factory of Guangzhou
13	SJ1	Time control relay of rising	JS23-61/2	The 4 th Electrical Equipment Factory of Guangzhou
14	SJ2	Time control relay of falling	JS23-61/2	The 4 th Electrical Equipment Factory of Guangzhou
15	SA	Rising button	Fushi button(green)	(same with reader machine)
16	XA	Falling button	Fushi button(re	(same with reader machine)
17	QS	Air switch	3P10A	
18	SA01	Rising button	Long-distance, or non-source usual opening touch point	
19	XA01	Falling button	Long-distance, or non-source usual opening touch point	
20	FS	Rising electromagnetic valve	Road block oil valve (self-prepared)	
21	FX	Falling electromagnetic radialization	Road block oil valve (self-prepared)	
22	M	Oil pump electric motor	Pump station(self-prepared)	

Installation and adjustment, daily maintenance

The Road blocker is installed on the main entrance and exit of vehicle and buried below the road surface with strong foundation. To ensure rain water are drain from this trench or ditch, drainage are constructed to facilitate this draining. Preventive maintenance are requires to ensure this drainages are cleared periodically to prevent blockages that can cause stagnant There should be the place prearranged to draining ditch and tube and also to liquid tube and liquid pump station on the ground convenient for operating and maintenance. Electric control system should be installed in the position easy to operate and control especially above ground

Figure 6 shows the typical installation of the road blocker layout

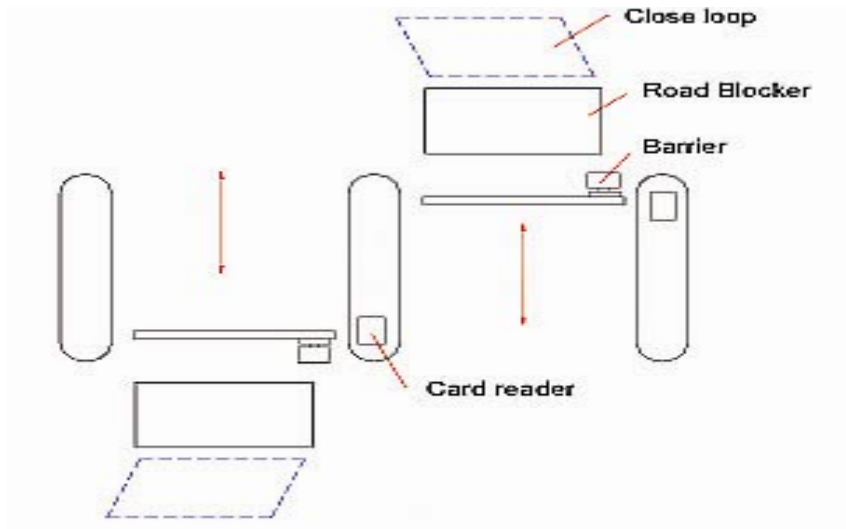


Figure 6

Figure 9 shows the installation of SBR120 type road blocker's and main engine.
Figure 10 shows the installation of the pump station

Figure 9 (Road blocker installation)

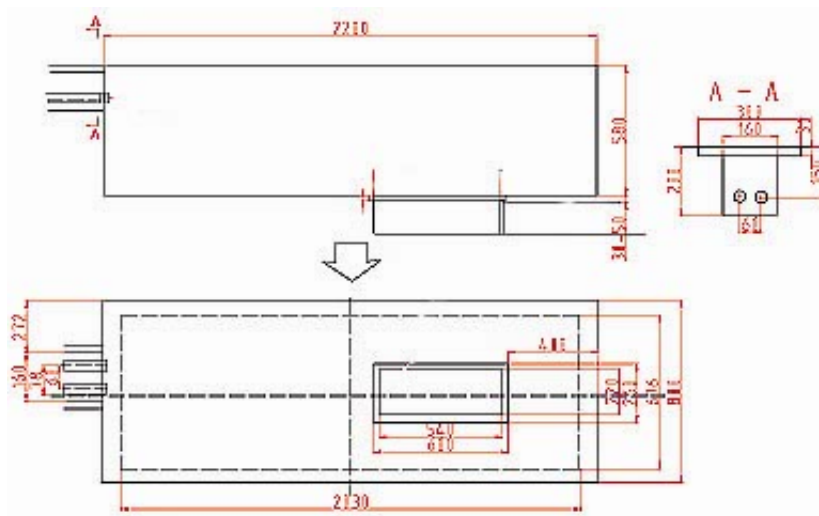


Figure 10 (Hydraulic pump station)

Figure 11 show the SBR121 type road blocker's main engine installation
Figure 12 show the SBR121 hydraulic system installation

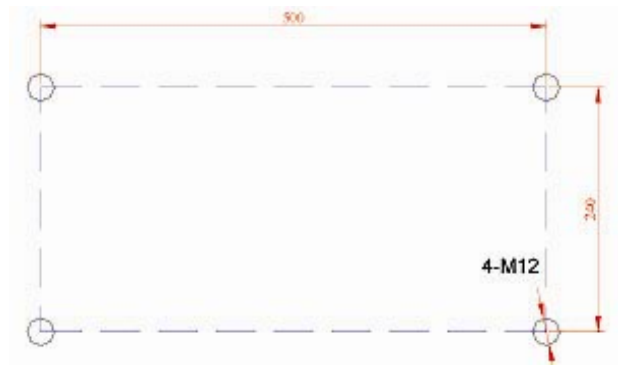
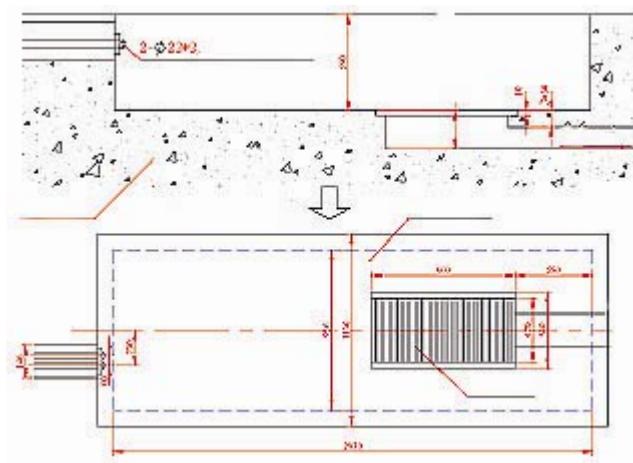


Figure 11



Drawing 12

Pipeline and circuitry connection

Before excavation of the ground for the installation of the road blocker, the various equipment positions are to be confirmed first. Detail lay out of the pump station, hydraulic piping system, drainages, main road blocker structures and electrical controller are to be mark out. Hydraulic pipe lines are to be mark out as it is installed underground thus care should be taken to prevent damage in future construction

The pipeline layout are to be installation according to manufacturer specification. Normally the expected buried depth is from 10cm to 30 cm width is about 15 cm the expected buried depth of control wire is from 15cm to 55cm, width is about 5 cm

In installing the hydraulic piping attention should be noted that all the entrance and exit of piping to the equipment are to be sealed tightly to prevent hydraulic oil leaking from these joints.

Road Blocker pre-test before final installation

Extensive pre-test for hydraulic pressure, leakages at joint and system trail run are to be carryout before the final installation.

Topping up of hydraulic oil into the hydraulic tank

Hydraulic oil topping up are to be carryout carefully. Ensure in the first topping up the oil level should be above the high level. This can be seen from the hydraulic sight glass

Power supply connection

To install the power cable to the 3 phase motor for the hydraulic pump

Switch on the pump motor and examine the rotating direction of electric motor to ensure the direction is correct. Once the pump started, allow the motor to run for 5 minutes to ensure smooth operation. During this time check for leakages and abnormal condition.

Once this is done On and Off the system to ensure the road blocker flexible board open and close normally. The interval time for the ON / Off must be prolong to about 30 seconds. Once this is done check the hydraulic sight glass to ensure the hydraulic oil is at the middle of the sight glass. If the hydraulic oil is not enough please top them up

Watch the oil pressure gauge in trial running. The pressure should be about 3Mpa in normal opening and closing flexible board.

Once the trial runs goes well, the final stages is to reinforce the surrounding of road blocker by pouring concrete into it.

Daily usage and maintenance

a. Daily maintenance

Main frame : clear the dirt, filth, smooth the underground water channel, adjust balance system.

Liquid system : examine oil position and oil pressure gauge, topping oil and cleaning.

Electric control system: dustproof, waterproof and cleaning

500 hours maintenance

Clear main frame of any sand and water in the trenches, Renew hydraulic oil, Check for loose bolt and nuts and retighten them if necessary, Check pipeline for leakages

1500 hours maintenance

At 1500 hours maintenance do all the 500 hours maintenance but additional to renew sieve core for absorbing oil.

Common fault and solution

Troubleshooting on chart E

Chart E Usual Trouble and Solutions

Trouble feature	Reasons and position of trouble	Solutions
Failure to start	Power failure to connect	Examination or power turn-on
	Fuse melted or switch failure	Renew fuse or close switch
	Ineffective touch of control	Examine and repair or replace touch
Loose closeness of flexible board	Dirt and filth	Clear dirt and filth
	Bad to balance spring	Adjust balance spring

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	Leakage of oil pressure	Examine and adjust oil pressure
No running after starting hydraulic pump system	Ineffective touch of control Relay	Examine and repair or replace relay
	Electromagnetic valve don't work	Examine and repair or replace electromagnetic valve.
	Seal loop in oil pressure pump was damaged	Examine and repair or replace
	Short oil pressure	Examine and adjust oil pressure
Slow moving of flexible board	To regulate the speed of (an engine) with a throttle.	Adjust throttle
	Pro-phase leak of Electromagnetic Valve	Examine and repair or replace
	Oil seal leak internally	Examine and repair or replace

Note when ordering the SBR120 and 121

- a. Road blocker is equip with 5 meters oil duct
- b. Type of model is to be specified clearly before order
- c. Need to make sure the left or right side direction of road blocker so as to have a clear liquid oil duct deploy.

The ways to know road blocker' direction:

According to vehicle moving direction, if liquid pressure oil duct is located in the left of machine body, it is called left direction road blocker, vice versa, it is right direction one.

The above system are marketed and distributed by:

Securitex Electronic Systems Engineering

Block 9010 #04-145 Tampines Industrial Park A Singapore 528844 Tel: 65-67852171 Fax: 65-67863351