Avon Barrier Company Ltd

THE RB680 PARKING BLOCKER

INSTALLATION, OPERATION & MAINTENANCE MANUAL

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INTRODUCTION

This manual describes the Installation, Operation and Maintenance requirements of the RB680 Hydraulically operated Parking Road-Blocker.
If you do not understand any part of this manual please contact our Head Office for assistance. In this way we may continue to improve our product.

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SCOPE OF DOCUMENT

The RB680 Parking Blocker shall hereafter be referred to as the 'Blocker'
This document is intended for those who will:
Install the Blocker
Maintain the Blocker
Use the Blocker
Interface the Blocker to other equipment.
De-commission/De-install the Blocker.

CAUTION:

Never exceed the recommended environmental and electrical limits.

Always ensure you are qualified and competent to perform any task you may be about to attempt.

Avon Barrier Company Ltd has a policy of continual product improvement. As a result the products supplied may vary from the specification described here. If in doubt please contact Avon Barrier Company Ltd, or visit our website at http://www.avon-barrier.co.uk/

TABLE OF CONTENTS

DESCRIPTION

Overall

The Blocker is designed to operate in the general parking environment where a more robust and vandal resistant solution is required for traffic control.

With its heavy welded steel section construction and durbar top plate, this machine is ideal for the unattended parking field.

Mode of operation

The standard mode of operation is via push button control to Raise and Lower the Blocker.
The RB680 may be fitted with an optional PLC controller, which can be programmed for use with the majority of access control and signalling equipment. An optional manual pump may be also provided to ensure operator control is maintained in the event of power failure.

Security

The Blocker wedge has a single centrally mounted inspection hatch, to enable access for maintenance, which is fastened by two M16 steel, dome-head bolts.
This gives access to the Hydraulic Ram and Limit switches.
The Hydraulic Power Unit (HPU) and electrical controls are housed in a roadside mounted cabinet, constructed from 2.5mm steel and finished in a high quality powder coated paint finish.
Access to the cabinet is via two removable doors, one at the front and one at the rear. These are secured using two cam barrel locks to the top of each door.

Options

The Blocker comes with a raise and lower push-button control as standard however, it can be customised to interface with a wide range of access control equipment to suit specific customer requirements and any configuration including (but not limited to) inductive loop systems, card readers and revenue collection equipment can be accommodated.

Where the Blocker control point is remote from the installation, we recommend the fitting of CCTV and safety inductive loop systems.

Other optional extras that can be supplied include traffic lights, signage and intercom systems.

TECHNICAL DETAILS

Physical dimensions :	HPU Cabinet	635W x 650D x 1300H
	Road Blocker	to suit site requirements
Power requirements :	3-Phase 415V AC, 50Hz, 10 Amps (Typ.) (Dependant on site specific requirements)	
Construction :	All welded steel construction, self-shuttering for ease of installation. HPU - 2.5mm Steel housing and door.	
Locking :	2 x M16 Dome head steel bolts securing the inspection hatch. 2 cam barrel locks on each HPU cabinet door.	

MECHANICAL INSTALLATION

Read all of below in conjunction with drawing RB680-6-001.

Siting

Care must be taken not to mount the Blocker unit in an area that is susceptible to flooding or a high-water table. Where this is unavoidable a suitable pump system and sump must be used to keep the inside of the Blocker free of water.

The HPU should be sited at the roadside, or within 8M of Blocker centre. Should a pair of Blockers be controlled by a single HPU, this can be mounted either at the roadside or on a central traffic island.

Base Preparation

Base should be 300mm x 1235mm x Dim. 'A' reinforced raft foundation with drain outlet near centre of base.
Recommended concrete type is C35 grade with reinforcement, in accordance with the specification, for both base and walls.
Finish should be levelled with road camber and trowelled or brushed.
A Drainage point leading to storm water drainage or a soak away must be included in the base design.
Once the base is cured, the Blocker can be craned into position and levelled using shims as necessary.

Backfilling

Once the Blocker is in situ the unit may be fixed in place using the internal fixing points to prevent movement whilst backpouring.
The hydraulic and electrical ducts and limit switch cables should then be fed through the side wall of the Blocker.

1. Any openings/gaps should be sealed, using Flexi-foam or equivalent, to reduce ingress of concrete.
2. The walls can then be poured around the unit and tied in to the foundation using suitable re-inforcing bars, to a minimum thickness of 300mm, and brought right to the underside of the edge angles of the Blocker.
3. Once the concrete has cured the external fixings may be installed.

Ducts

See indicative drawing RB680-6-001.

HPU Foundation

The foundation for the HPU is 800 x 800 x 300mm deep sub-surface concrete base with the opening for the ducts offset towards the rear of the HPU cabinet. (see Drawing RB680-6-001).

Hydraulic Hoses

All hydraulic pipes must be of double braided construction to EN853-2SN 10 rated at 33 Bar and should be run between the HPU and the Blocker in PVC ducting.
All joints in the conduit should be smooth and free from sharp edges and burrs to prevent scoring the hose outer sheath during installation and Blocker operation.
The hose length should be sufficient to allow for some slack in the HPU cabinet for expansion or shrinkage.
When fitting the hoses care should be taken to not allow contamination from dirt, water, swarf etc. This is done by always flushing new hoses prior to fitting and capping off any open ends/connectors.
Where the distance between the HPU and the Blocker exceeds 10M steel piping may be required in place of the standard hoses. Please contact Avon Barrier Company Ltd. for further details.

INSTALLING INDUCTIVE LOOP SYSTEMS.

Two types of loop installation may be used. For existing roadways, saw cut loops are most cost effective. Preformed loops encased in PVC conduit or trunking must be used in installations under block paving.

The size and shape of the loop determines the detection zone characteristics.

Loop size may vary and will depend upon lane width, traffic patterns and types of vehicles to be detected.

The loop installation area must be free from reinforcing steel, electrical cables, steel conduit or water pipes. Loop wires should not be installed above any of these items.

Saw cut installations

The slots must be 40-50mm deep and clean, with no sharp corners which could damage the cable insulation and just wide enough to accommodate the type of cable being used.

The wire used for the loops should have an insulation rated for direct burial as moisture can cause significant loop frequency drift. A 1.5mm single core, class 854, type 4A, double insulated, rubber sheathed cable is ideal.

- When the cable is laid, the installer should ensure that no insulation is protruding above road level.

An appropriate sealant should be used dependant upon the finished road surface, i.e. mortar dry mix, brushed into the loop slot, or hard setting epoxy for concrete roadways and bitumastic for tarmac roads. Caution should be taken when using hot fill sealant, as the high temperatures could damage the insulation.

The loop should, wherever possible, be installed in one continuous run, any connections made must be soldered and protected with a moisture proof seal.

The tails of the loop should be twisted together from the point of leaving the loop to the termination's in the barrier.

- The tail should have no fewer than 20 turns per metre.
- The connections to the barrier terminal rail should be securely tightened.

PREFORMED LOOP INSTALLATIONS

The loops are usually manufactured prior to installation.

The cable is housed in a PVC conduit or trunking to provide mechanical protection, with the twisted tails exposed.

These loops are then laid in the roadway in their final location and embedded into sand. The block pavoirs/paving are then placed over the top and firmed down as normal.

Care should be taken not to crush or damage the trunking or cable when installing the cabling.

It is advisable to perform an earth leakage (Megger) and loop resistance test prior to commissioning the loop.

General Health & Safety points

- Use extreme caution when using hot-fill bitumen to backfill.
- Keep burner and gas within view but away from the immediate working area and protect from collision or persons.
- Use appropriate gloves and goggles, with standard PPE, when handling the hot bitumen and always keep an appropriate fire extinguisher handy.
- When using a cement compound to backfill be aware of the risk to health from cement dust and wear appropriate gloves and face mask to protect from inhalation.
- If using a chemical compound to backfill, read all of the manufacturers literature and comply with all Health & Safety instructions given.

ELECTRICAL INSTALLATION

Environmental and Power Requirements

Environment	Minimum	Maximum
Temperature Standard	-10˚C	+50˚C
Temperature Controlled	-20°C	+70°C
Humidity	5%	95% Non Condensing

Electrical Supply	Value	Tolerance	Comments
Supply Voltage (V ac)	415	+10%, -15%	
Supply Voltage Frequency (Hz)	50		
Optional frequency (Hz)	60		
Current Rating (A) (Current dependant on Equipment supplied and may vary)	10A		The Blocker should be protected by a type 'C' MCB
Maximum power cable size (mm2)	6		
Maximum signal cable size (mm2)	4		

Electrical Connection – Power

Power isolation is via a rotary disconnect switch on the front of the electrical housing and a DIN rail mounted MCB at the bottom left of the panel.

The 3-Phase power supply is brought into the MCB and terminated, using standard cable colour convention.

Electrical Connection - Signal

Signal connection is via the DIN rail mounted terminals to the right of the isolator.
Please see site specific electrical drawing for termination details.

Important

Electrical installation must be in accordance with current local regulations.

All cable sizes to conform to site specification and current local regulations.

Keep the power wires separate from the control wires. To avoid any problems from electrical interference it is advisable to route these wires in separate conduits.

Inductive Loop Detector 326 Series (Boxed)

(Other makes and models of Detector may be substituted, see Site Specific Info.)

LED Power / Detect indicator

Off = No power or Fuse is Blown.
Green = Power is applied to Detector, Internal Fuse is O.K. and there is no vehicle being detected.
Red = Vehicle is being detected/Detector is 'locked out'
Flashing = Loop failure – 3 Reds, Green, 3 Reds suggests Loop inductance is out of range of Detector.
3 Green, Red, 3 Green suggests faulty cable.
To reset the detector, momentarily change the sensitivity setting or remove the power for 30 seconds.
If the fault re-appears contact Avon Barrier Company Ltd. for further advice.

SENSITIVITY SWITCH

This is a rotary switch located between the LED and DIP Switches.
0 = Low sensitivity
9 = High sensitivity
4 = Factory setting, suitable for most applications.**DIP Switch (S1) Settings**

Switch 1 - Sensitivity Boost
Off = No sensitivity boost
On = Increases sensitivity 2 levels above preset (S2) during detection.
S2 should not be set higher than 5 when Sensitivity boost is 'ON'.

Switch 2 - Presence Mode
Off = Normal Presence mode
On = Infinite Presence mode
Infinite presence may be lost in the event of a power fail.

Switch 3 - Delay Time
Off = No Call Delay
On = 2 Sec. Call Delay

Switch 4&5 - Signal Extend Time
4-Off, 5-Off = No Call Extend
4-On, 5-Off = 2 Sec. Call Extend
4-Off, 5-On = 5 Sec. Call Extend
4-On, 5-On = 10 Sec. Call Extend

Switch 6&7 - Select Output-B Mode
6-Off, 7-Off = Pulse on Entry
6-On, 7-Off = Pulse on Exit
6-Off, 7-On = Presence Mode
6-On, 7-On = Fail Output

Switch 8&9 - Loop Frequency Settings
8-Off, 9-Off = High
8-On, 9-Off = Medium High
8-Off, 9-On = Medium Low
8-On, 9-On = Low

Amphenol Connector – Pin Outputs

Pin No.	Cable colour	Connection
1	Black	240V AC Line

2	White	240V AC Line
3	Orange	Output ‘B’ Relay (N.O.)
4	Green	Output ‘B’ Relay (Com)
5	Yellow	Output ‘A’ Relay (N.O.)
6	Blue	Output ‘A’ Relay (Com)
7	Grey	Loop
8	Brown	Loop
9	Red	Ground/Earth
10	Violet	Output ‘A’ Relay (N.C.)
11	White/Green	Output ‘B’ Relay (N.C.)

SYSTEM TEST AND HANDOVER

Handover demonstration	
	Comments
Check all terminations – Pushbuttons/Limit switches/ Power supply/Loops etc.	
With PLC set to 'OFF' switch on power supply and De-pressing the motor contactor check motor direction.	Check direction with arrow on motor.
Check manual operation i.e. Manual hand pump.	Top up with oil as necessary.
Switch PLC to 'Run' and Raise & Lower the Blocker	Switch located Under cover on Front of PLC.
Check access control equipment operation. I.e. Inductive loops, pushbuttons etc.	Where fitted.
Confirm speed of operation.	4 – 6 Secs.
Check float switch operation by disconnecting.	HPU should not function.
Demonstrate all routine maintenance tasks	See page 17
Demonstrate power isolation	MCB and Rotary switch.
Demonstrate oil/filter change procedure	See page 15
Demonstrate relay change procedure	See page 15
Demonstrate pressure adjustment procedure	See page 15
Demonstrate mode of operation	Refer to W/I
Demonstrate setting up of access control equipment	Where applicable.

SYSTEM TEST PROCEDURES

Motor Direction Check – Set the PLC to 'Off' by using the switch located under the front cover on the PLC, and switch the Mains power on at the MCB and Rotary Disconnect switch on the front of the electrical enclosure. Locate the Motor contactor block and depress the central segment. The motor should spin whilst the contactor is depressed. Check the direction that the motor is spinning by observing the fan blades through the top grill of the motor. The motor direction should be as that indicated by the arrow on the fan cowl. If the motor spins in the wrong direction then swap two of the incoming phases around until it spins correctly.
Power off the Electrical panel and the incoming mains before swapping the cores.

ROUTINE MAINTENANCE PROCEDURES

Float Level Switch

Unscrew and remove the solenoid on top of the Float level sited on top of the Hydraulic pack. Test to see if the Blocker still operates.
If it does contact Avon Barrier Company Technical Department immediately.

Oil/Filter Change

Power off HPU using the Rotary Disconnect Switch and MCB. Undo filler cap and remove oil filter.
Remove the sump plug from bottom of Hydraulic pack and drain oil into a suitable container. Once the tank is empty, replace the sump plug and fit the new Oil filter. Re-fill with fresh oil as per the chart on page 22. Fill to approximately 2 centimetres from the top of the gauge on the side of the tank. Replace filler cap and switch on power.

Relay Change Procedure

Switch the PLC to 'Off' using the switch located under the flap on the front of the PLC. Remove the Relay's and replace with 24V AC Double pole relays. Switch the PLC back to 'Run'.

Pressure Adjustment Procedure

Locate the pressure relief valve located on or near the Hydraulic Stack. Loosen off locking grub screw, where fitted, and gently turn clockwise to increase the pressure or anti-clockwise to reduce the working pressure.
Please Note: The pressure is set in the factory during testing and should not require further adjustment on site.

OPERATION

The RB680 Road Blocker is operated, as standard, by a two-button control unit, incorporating 'Raise' and 'Lower' commands.

Additional / alternative controls may be utilised; however this may require alterations or amendments to the standard control unit. The 'mode of operation' should be conveyed to Avon Barrier Company Ltd. prior to the equipment being built.

The electrical control panel operates a number of solenoids on the HPU which in turn control the flow of hydraulic oil, thereby allowing the Blocker to be raised or lowered as required.

Please note: More than one Blocker may be controlled from a single HPU.

SAFETY

***All Maintenance work must be carried out by competent and fully trained personnel*.**

Under no circumstances should anyone be in the Blocker when it is not fully lowered

Prior to servicing the lowered Blocker, all electrical supplies are to be isolated and locked off and the oil pressure reduced to zero

MANUAL HAND PUMP

Where a manually operated hand pump is provided, this is to only be used whilst the power supply is switched off. The relevant Blocker may be raised or lowered using this facility.

To Raise:

- Remove the Front door of the Hydraulic Power Unit (HPU).
- Switch off power using rotary isolator switch.
- Locate the Raise solenoid overrides (on the rear of pack – small T-bar type 'radiator key' style screws. To raise all blockerss, slacken off the locknuts and wind in all front screws. The screws should be wound in clockwise, by hand, until tight.

Do not overtighten!

Locate the 'Hand Pump' pipe outlets (on the front of the pack – Blue valves) and wind out all valves (anti-clockwise) until tight.

- Insert 'Manual Pump' handle into the Pump mechanism.
- Pump up & down until the Blockers are fully raised.
- Return all screws and valves to their original positions.

To Lower:

- Remove the Front door of the Hydraulic Power Unit (HPU).
- Switch off power using rotary isolator switch.
- Locate the Lower solenoid valves (on the rear of the pack – small T-bar type 'radiator key' style screws. To lower all Blockers, slacken off the locknuts and wind in all rear screws. The screws should be wound in clockwise by hand until tight.

Do not overtighten!

Locate the 'Hand Pump' pipe outlets (on the front of the pack – Blue valves). And wind out all valves (anti-clockwise) until tight.

- Insert the 'Manual Pump' handle into the Pump mechanism.
- Pump up & Down until the Blockers are fully lowered.
- Return all screws and valves to their original positions.

ROUTINE MAINTENANCE AND FAULT FINDING

VISUAL CHECKS	Condition of Hinges Speed of Blockers (4/6 secs) Traffic Lights (where fitted)	
PREPARATION	Switch of Power Lower manually 'STOP' PLC Controller Remove Relays	
HYDRAULICS	Oil within 2cm of top of glass with zero pressure. Hoses- Leaks/Joints/Bulging Rams- Leaks/condition Pump to cut out at 1500PSI	
ELECTRICS	Terminations tight Condition of Relay contacts Check Trip switches (where fitted) Check condition of Loops (where fitted) Check all control functions	
BLOCKERS	Grease bolts Grease ram fixing points Check Hinge bolts are secure Check smooth operation Clear debris from pit Check/rod drain	
LIMIT SWITCHES	Check general condition Open circuit resistance Water ingress to junction box	
HPU	Check door seal Clean Dust/Swarf/Oil etc.	
POWER UP	Re-insert relays 'RUN' PLC Controller Switch on Observe operation	

Oil changes

Whenever the oil is changed, the reservoir must be cleaned internally to remove any deposits. The first oil change is necessary after approx. 50 Hours. Thereafter, the oil should be changed at least every 1500 Hours and at the latest every 3000 operating Hours, depending upon the operating conditions. In addition, the time interval between changes depends upon the quality of the fluid and the operating temperatures. At higher temperatures it is necessary to change the oil more frequently.

Return filter/Breather filter

The filter cartridge must be replaced at least every time the oil is changed. At the same time the breather filter needs to be checked and cleaned. Where the environment is very dirty the filter cartridge needs to be checked monthly, and where necessary, replaced.

Level indicator

The Level Float switch will operate when the oil level gets too low and will inhibit the Blocker from working. Should this happen the oil level must be checked without delay and, if necessary, increased. If a leak is suspected then hoses, joints and rams should be checked.

Filling oil tank

Only use mineral hydraulic oil HLP-type according to DIN 51524 Part 2 with a viscosity of approx. 25-40mm²/s at working temperature. Make sure that it is not possible for dirt to enter the fluid reservoir. To fill the reservoir, remove the silver filler cap or the red cap from the filler breather tank. Now fill with fluid until the level is visible in the upper level gauge. In operation the fluid must always be within two centimetres of the top of the gauge. Only use filtered with a degree of purety corresponding to BP Bartran HV32 and with a temperature range to suit the local ambient levels.

Setting system pressure

Loosen lock nut.

1. Adjust the pressure using a screwdriver at the adjusting screw.
2. (Pressure increases with clockwise rotation of this screw).
3. Tighten lock nut with 1Nm.

Note: This valve is factory set and should not require further adjustment.

Recommended hydraulic fluids

BRAND (alphabetical)	*Hydraulic-mineral oil HLP*	*to DIN 51524, part 2*
	ISO - VG32	*ISO - VG46*
	Temperature	*Range*
	+10 to +60 degrees C	*+20 to +70 degrees C*
AGIP	AGIP OSO 32	AGIP OSO 46
ARAL	ARAL VITAM GF 32	ARAL VITAM GF 46
ASEOL	ASEOL PLUS 16-110	ASEOL PLUS
BP	BP BARTRAN HV 32	BP BARTRAN HV 46
CASTROL	CASTROL HYSPIN AWS 32	CASTROL HYSPIN AWS 46
ESSO	ESSO NUTO H 32	ESSO NUTO H 46
FUCHS	RENOLIN MR 10	RENOLIN MR
GULF	GULF HARMONY 32 AW	GULF HARMONY 46 AW
MOBIL	MOBIL D.T.E. 24	MOBIL D.T.E.
PANOLIN	PANOLIN HLP 32	PANOLIN HLP 46
SHELL	SHELL TELLUS OIL 32	SHELL TELLUS OIL 46
TEXACO	RANDO OIL HD A-32	RANDO OIL HD A-46

FAULT FINDING

Fault	Fix
Wrong rotation direction or bad Coupling on motor	Change electric motor poles or check coupling key.
Motor running but Blocker not raising	Check PLC LEDS to see if motor overrun has been implemented.
Low oil level	Check for loose couplings / cracked hoses etc. Then top-up.
Clogged strainer	Remove and clean.
Malfunction of the suction valve	Check and replace.
Air bubbles in circuit	Drain the circuit and refill
Air intake through suction	Change union or seal and check air tightness of pipe.
Cold oil (High Viscosity)	Lower pump pressure or add a heating system.
No priming of pump	Drain delivery pipe.
Snapped pump shaft	Determine reason why (pump overload or bad alignment).
Bad quality of oil	Drain system, flush through and refill with new oil.
Oil tank not air-freed	Fit breather or air filter on tank.
Cavitation	Prime pump. Set or control the Motor valves.
Blocker will not raise/lower	Check limits, oil level and power supply.

PARTS LIST

Item No.	Description –Type
3310.1015	HLPD/X170C Gear Pump
3325.1013	ND 11 D100 GP1 Drive Coupling
3320.0013	415V 3PH 50Hz 4 Pole Frame D100L35 Motor
3345.0017 Return line filter	TEFB55.25VG.16.SP.G.30
300094	01E.70-25VG.16.SP Filter element
3340.0005	LVA-2-T-A Sight level
277.2002	BE4D42-R24 Solenoid Op. spool valve
666.1002	BERVB4 Pilot Op. check valve
3340.0034 Pressure gauge	213.53.063/LM/250
3310.9002	PM SS-VS-12 Hand pump
3340.0037 Float switch	RL-G1-F3-S2-225LG
595.1082	BVSSA04-P-160 Pressure relief valve
3345.5021	STR070.1-SG1-M90 Suction filter
629.1000	BURD4 Throttle valve
XS1-M30MB250	Proximity Limit Switch
G2R-FNI24VAC	24VAC Relays

DECOMMISSIONING

Care must be taken to avoid contamination of the local environment by residue hydraulic oil when de-commissioning the Avon Road Blocker system.

Lower the Road blockers and switch off power using the rotary disconnect switch on the front of the electrical control box. Open the box and switch off the incoming mains switch. Ensure that all control equipment is also isolated.
Locate the incoming mains supply distribution point, Isolate the appropriate circuit and disconnect. Once all equipment has been proven electrically dead the cabling to the electrical panel may be disconnected and removed.
Open all pressure relief valves fully and close the accumulator shutoff valve (accumulators are fitted for 'fast raise' systems and are not installed on all HPU's). This will dump the hydraulic oil to tank, however they may be some residual pressure in the hoses.
Prevent oil seepage by sealing all drainage pipe outlets prior to disconnecting hoses.
Disconnect all the hydraulic hoses from the HPU output valves and fit plugs to Ports and hose ends; this will prevent any hydraulic oil spillage.
Open the service hatch and limit switch cover plate in the road blocker and pull through the hoses and limit switch cables. These may be disconnected or left coiled in the bottom of the blocker. Remove the top pin from the hydraulic ram.
Remove the remaining side plate and rear road plate to gain access to the hinges.
Undo and remove the hinge bolts and lift off the top of the bearing housing and bearing shell.
The 'Wedge' or moving section of the blocker may now be lifted from its frame using lifting eyes bolted into the lifting points in the road-plate.
Once the wedge is removed the hydraulic ram and hoses can now be lifted out.
The frame was manufactured as a self-shuttered unit and therefore there will be no sections of steelwork protruding from the frame into the concrete foundation. There may however be bolts located in the base that held the frame in place whilst the concrete surround was poured. This unit can also be lifted using the lifting points on the outside edge of the frame.

All the steel work is recyclable, however the HPU, Hydraulic hoses, ram(s) and any hydraulic oil must be disposed of by an authorised/licensed waste Disposal Company in order to reduce environmental impact.

COSHH STATEMENTS

HYDRAULIC OIL DATA SHEET

1: IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING
Hyspin AWS 32 6018-UK Product Name: **Code:**
Application: Hydraulic systems
Company: **Castrol (U.K.) Limited**
Address: Burmah Castrol House, Pipers Way, Swindon, Wiltshire, SN3 1RE
Telephone (24 hours): **01793 512712** Fax: 01793 491442

2: COMPOSITION/INFORMATION ON INGREDIENTS
Composition: Highly refined mineral oil and additives
Hazardous Ingredient(s) Symbol Risk Phrases Other Information %
This product contains ingredients
classified as hazardous. However, they
are NOT present in sufficient quantities
to warrant classifying the product as
hazardous
All constituents of this product are listed in EINECS (European Inventory of Existing Commercial Chemical
Substances) or ELINCS (European List of Notified Chemical Substances) or are exempt.
Refer to Section 8 for Occupational Exposure Limits.

3: HAZARDS IDENTIFICATION
This product is NOT classified as hazardous

4: FIRST AID MEASURES
Eyes: Irrigate immediately with copious quantities of water for several minutes
Skin: Wash thoroughly with soap and water or suitable skin cleanser as soon as possible
Inhalation: Remove from exposure
Ingestion: Obtain medical attention. Do NOT induce vomiting.

5: FIRE FIGHTING MEASURES
Suitable Extinguishing Media: Carbon dioxide, powder, foam or water fog - Do not use water jets
Special Exposure Hazards: None
Special Protective Equipment: None

6: ACCIDENTAL RELEASE MEASURES
Personal Precautions: Spilt product presents a significant slip hazard
Environmental Precautions: Prevent entry into drains, sewers and water courses
Decontamination Procedures: Soak up with inert absorbent or contain and remove by best available means

7: HANDLING AND STORAGE
Handling: When used in high-pressure systems, leakage may result in mist formation so presenting a hazard
To avoid the possibility of skin disorders, repeated or prolonged contact with products of this type must be avoided. It is essential to maintain a high standard of personal hygiene
Storage: No special precautions

8: EXPOSURE CONTROLS/PERSONAL PROTECTION
Occupational Exposure Limits:-
Substance 8 Hr.TWA STEL Source/Other Information
Mineral oil (see Oil mist, mineral) 5mg/m3 10mg/m3 EH40 (OES)
Engineering Control Measures: Mechanical methods to minimise exposure must take precedence over personal protective measures
Personal Protective Equipment: Avoid skin and eye contact. Wear impervious gloves (eg of PVC), in case of
repeated or prolonged contact. Change contaminated clothing and clean before re-use

9: PHYSICAL AND CHEMICAL PROPERTIES
Physical State: Liquid
Colour: Amber
Odour: Mild
Boiling Point/Range (°C): Above 250
Pour Point: (ºC): Below minus 30
Kinematic Viscosity @ 40ºC (cSt): 32
Flash Point (closed, °C): Above 170
Autoignition (°C): Above 250
Explosive Properties (%): Not determined
Relative Density (at 20°C): Below 1.0
Water Solubility: Insoluble
Fat Solubility: Not determined

10: STABILITY AND REACTIVITY
Stability: Stable, will not polymerise
Conditions to Avoid: Temperatures (°C) above 90
Materials to Avoid: Strong oxidising agents
Hazardous Decomposition Products: None

11: TOXICOLOGICAL INFORMATION
The following toxicological assessment is based on a knowledge of the toxicity of the product's components
Expected oral LD50, rat > 2g/kg

Health Effects
On Eyes: May cause transient irritation
On Skin: Unlikely to cause harm on brief or occasional contact

By Inhalation: Mist and vapours may cause irritation to nose and respiratory tract
By Ingestion: May cause nausea, vomiting and diarrhoea.
Chronic: Repeated and prolonged skin contact may lead to skin disorders
Other: None known

12: ECOLOGICAL INFORMATION
Environmental Assessment: When used and disposed of as intended, no adverse environmental effects are foreseen
Mobility: Mobile liquid. Insoluble in water. Non-volatile.
Persistence and Degradability: Inherently biodegradable
Bioaccumulative Potential: Bioaccumulative based on logP values of constituents
Ecotoxicity: Not expected to be toxic to aquatic organisms
Not expected to be inhibitory to sewage bacteria

13: DISPOSAL CONSIDERATIONS
Disposal must be in accordance with local and national legislation.
Unused Product: May be sent for reclamation
Used/Contaminated Product: Dispose of through an authorised waste contractor to a licensed site
May be incinerated
Packaging: Must be disposed of through an authorised waste contractor
May be steam cleaned and recycled

14: TRANSPORT INFORMATION
This product is NOT classified as dangerous for transport

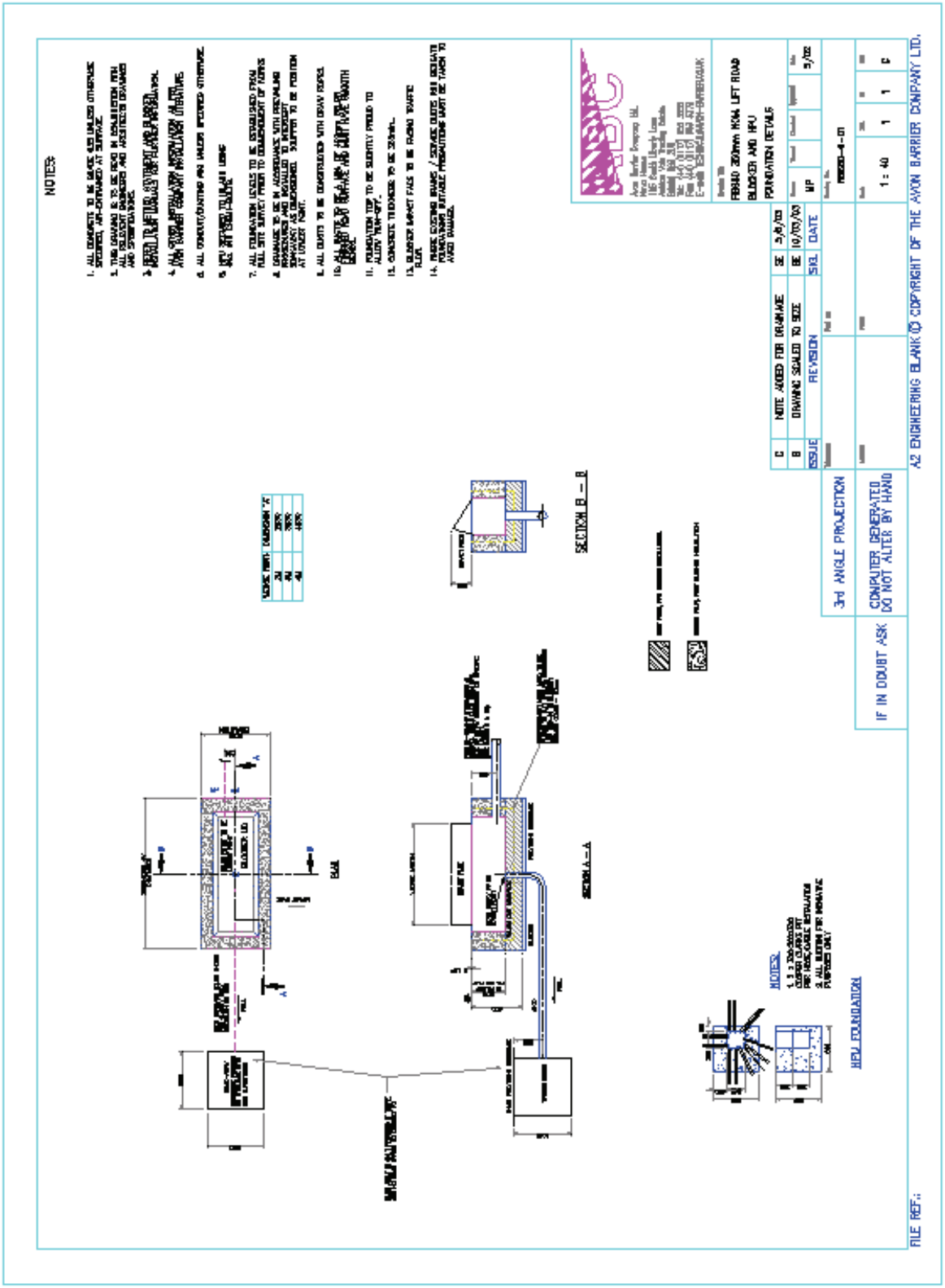
15: REGULATORY INFORMATION
This product is NOT classified as dangerous for supply in the UK

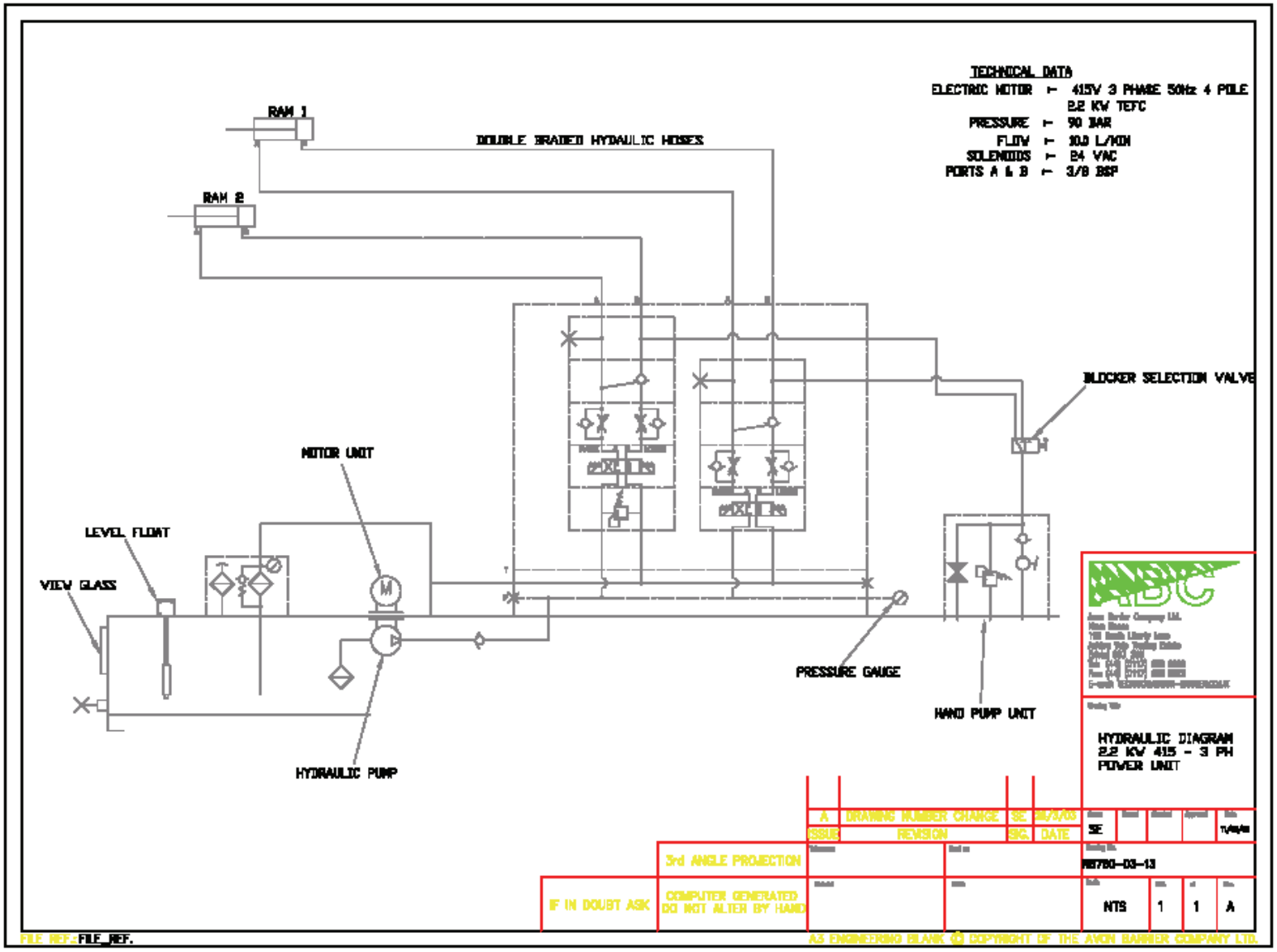
Hazard Label Data:-
EC Directives: Waste Oil Directive, 87/101/EEC
Framework Waste Directive, 91/156/EEC
Statutory Instruments: Health & Safety at Work, etc. Act 1974
Consumer Protection Act 1987
Environmental Protection Act 1990
Codes of Practice: Waste Management. The Duty of Care
Guidance Notes:
Occupational exposure limits (EH 40)
Carcinogenicity of mineral oils (EH 58)
Skin cancer caused by oil [MS(B)5]
Save your skin! - Occupational Contact Dermatitis [MS(B)6]
Dermatitis - cautionary notice [SHW 367]
Effects of mineral oil on the skin [SHW 397]

16: OTHER INFORMATION

The data and advice given apply when the product is sold for the stated application or applications. The product is not sold as suitable for any other application. Use of the product for applications other than as stated in this sheet may give rise to risks not mentioned in this sheet.
You should not use the product other than for the stated application or applications without seeking advice from us.
If you have purchased the product for supply to a third party for use at work, it is your duty to take all necessary steps to secure that any person handling or using the product is provided with the information in this sheet.
If you are an employer, it is your duty to tell your employees and others who may be affected of any hazards described in this sheet and of any precautions which should be taken.
Further copies of this Safety Data Sheet may be obtained from Castrol (U.K.) Limited.

DRAWINGS


NOTES:
SECTION A – A
SECTION B – B
PLAN
HDPJ FOUNDATION
3rd ANGLE PROJECTION
IF IN DOUBT ASK
COMPUTER GENERATED
DO NOT ALTER BY HAND
A2 ENGINEERING BLANK © COPYRIGHT OF THE AVON BARRIER COMPANY LTD.
FILE REF:
FB940 300mm KICK LIFT ROAD
BLOCKER ARM HPU
FOUNDATION DETAILS
NOTE ADDED FOR DRAWAGE
DRAWING SCALED TO SIZE
REVISION
DATE
1 : 40


TECHNICAL DATA
ELECTRIC MOTOR ⊢ 415V 3 PHASE 50Hz 4 POLE
2.2 KW TEFC
PRESSURE ⊢ 90 BAR
FLOW ⊢ 10.0 L/MIN
SOLENOIDS ⊢ 24 VAC
PORTS A & B ⊢ 3/8 BSP
RAM 1
RAM 2
DOUBLE BRAIDED HYDAULIC HOSES
BLOCKER SELECTION VALVE
MOTOR UNIT
LEVEL FLOAT
VIEW GLASS
PRESSURE GAUGE
HAND PUMP UNIT
HYDRAULIC PUMP
HYDRAULIC DIAGRAM
2.2 KW 415 - 3 PH
POWER UNIT
A
DRAWING NUMBER CHANGE
ISSUE
REVISION
3rd ANGLE PROJECTION
IF IN DOUBT ASK
COMPUTER GENERATED
DO NOT ALTER BY HAND
NTS
1
1
A
FILE REF: FILE_REF.
A3 ENGINEERING BLANK © COPYRIGHT OF THE AVON BARRIER COMPANY LTD.

DECLARATION OF CONFORMITY

E C MACHINERY DIRECTIVE 2006/42/EC

E C LOW VOLTAGE DIRECTIVE EN60204-1:1998

E C ELECTROMAGNETIC COMPATIBILITY

DIRECTIVE EN 50081-1 & EN 50082-2

We hereby certify that the RB 680 Road Blocker complies with the relevant provisions of the E C Directives detailed above.

Manufactured by:

Avon Barrier Company Ltd
Nova House
195 South Liberty Lane
Ashton Vale Trading Estate
Bristol
BS21 2TN

Date: 1st December 2009
Name: P A Jeffrey
Position: Managing Director, Avon Barrier Company Ltd

ToC

Avon Barrier Company Ltd

WARRANTY AND LIMITATION OF LIABILITY

Avon Barrier Company Ltd. warrants that during the first 12 months following delivery, the products will be free from defect in material and workmanship.
Avon Barrier Company Ltd's sole obligation under the terms of this warranty shall be to repair (or at Avon Barrier Company Ltd's. option, to replace) any defective product/part, without extra charge to the Buyer, provided that,

(a) Buyer gives Avon Barrier Co. written notice of any such claimed defect within such period of 12 months,
(b) The product(s), if installed, were installed by an Avon Barrier Company Ltd authorised installer,
(c) The products have not been altered, subjected to misuse, improper maintenance, negligence or accident, or used with parts not authorised by Avon Barrier Company Ltd.

NO OTHER WARRANTY IS EXPRESSED AND NONE SHALL BE IMPLIED, INCLUDING WITHOUT THE WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR USE.

THE FOREGOING STATES THE ENTIRE LIABILITY OF AVON BARRIER CO. LTD. WITH RESPECT TO THE PRODUCTS.

IN NO EVENT SHALL AVON BARRIER CO. LTD. BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES WHICH RESULT FROM USE BY BUYER OR ANY OTHER PARTY, OF THE PRODUCTS, AND IN NO EVENT SHALL AVON BARRIER BLOCKER CO. LTD's LIABILITY EXCEED THE AMOUNTS PAID BY THE BUYER FOR THE PRODUCTS THEREUNDER.

DISCLAIMER

Careful consideration must be given to the selection, placement and design of a Barrier installation, and care must be taken to ensure that approaching vehicles as well as pedestrians are fully aware of the Barrier system and its operation.
Proper illumination, clearly worded signage and auxiliary safety devices, should be considered

Avon Barrier Company Ltd. has information available on many such pieces of safety equipment not specifically listed here.

Avon Barrier Company Ltd Nova House 191-195 South Liberty Lane Ashton Vale Trading Estate Bristol England BS3 2TN

Revision History

Issue No.	Modification	Date	Done by
Issue 1	Release for comment	5/04/05	PHJ
Issue 2	Ammended	18/05/05	PHJ

Optional Equipment

Red/Green Traffic Lights – 100mm/200mm Lens option.

Manual Hand Pump – To Raise/Lower the Blocker in power failure.

UPS – Provides automatic operations during power failure.
(Electrically by battery, Hydraulic by accumulator)