RAPID BLAST™
1200

8 Channel Remote Electric Detonator Blasting System
OPERATIONAL REFERENCE GUIDE

DISCONTINUED PRODUCT 2020

v1.0

DESIGNED AND MANUFACTURED IN AUSTRALIA
Rapid Blast Systems Pty. Ltd.
a TJPe Company

IMPORTANT WARNING!

PLEASE READ THIS ENTIRE REFERENCE GUIDE BEFORE OPERATING.

THE KEYS FOR THE REMOTE INITIATOR AND RECEIVER/BLAST BOX WHEN NOT IN USE ARE TO BE IN THE POSSESSION OF THE PERSON IMMEDIATELY RESPONSIBLE FOR BLASTING OPERATIONS.

ANY DAMAGE OR OPERATIONAL MALFUNCTION MUST BE IMMEDIATELY REPORTED AND THE ENTIRE SYSTEM RETURNED FOR SERVICE AND INSPECTION TO RAPID BLAST SYSTEMS Pty Ltd.

THE RAPID BLAST 1200 SYSTEM HAS BEEN DESIGNED TO COMPLY WITH AND EXCEED ALL SPECIFICATIONS NOTED IN AS2187.2 – APPENDIX B.

IT IS STRICTLY PROHIBITED TO DISASSEMBLE ANY COMPONENT OF THE RAPID BLAST FIRING SYSTEM UNDER ANY CIRCUMSTANCE.

THE REMOTE INITIATOR AND RECEIVER/BLAST BOX HAVE BEEN FITTED WITH ELECTRONIC TAMPER SEALS. DO NOT OPEN!

IMPORTANT WARNING!

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1 INTRODUCTION

1.1 System Overview

Rapid Blast Systems is offering a unique Australian designed and built remote and manual firing system for use in mines, quarries, construction and general blasting activities. It is designed for the initiation of standard two (2) ohm electric detonators. The Rapid Blast 1200 is a remote control and manual firing unit with the option of firing either by radio control (RC) or manually by means of an electrical firing cable all contained in a single easy to use system.

The Rapid Blast 1200 comprises of eight (8) output channels that may be fired simultaneously or sequentially and can fire up to 150 detonators wired in series per channel.

1.2 Authorized Use

The Rapid Blast 1200 system may only be used STRICTLY by qualified shot firers.

1.3 Safety Notice

Other than when the system is in TEST MODE, ALL output channels have a physical and electronic short circuit placed across the output terminals at ALL times except when firing.

When the system is in ANY mode other than ARMED, the high voltage circuitry is disabled and short circuited rendering the system incapable of firing a detonator.

Each channel applies a voltage capable of initiating to the output terminals only for a fixed period of 25mS when fired.

While ARMED, the system may be DISARMED by either the MASTER POWER KEY, OPERATION MODE change or the SET button.

Manual FIRE buttons are inactive when in REMOTE OPERATION MODE.

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Remote FIRE buttons are inactive when in MANUAL OPERATION MODE.

2 ohm detonators per output channel: MIN 1, MAX 150.

The system will automatically DISARM and discharge all high voltages and shutdown when the battery is less than 10% charged and a SERVICE indicator will flash rapidly.

All other SERVICE indications during operation are for factory use only.

1.4 Package contents

1 x Rapid Blast 1200 Remote Initiator
1 x Rapid Blast 1200 Receiver/Blasting Box
2 x 240VAC Charger
2 x 12/24VDC Charger
2 x 2.5dBi Stainless whip antenna
1 x This Operational Reference Guide
1 x Registration/Warranty Card

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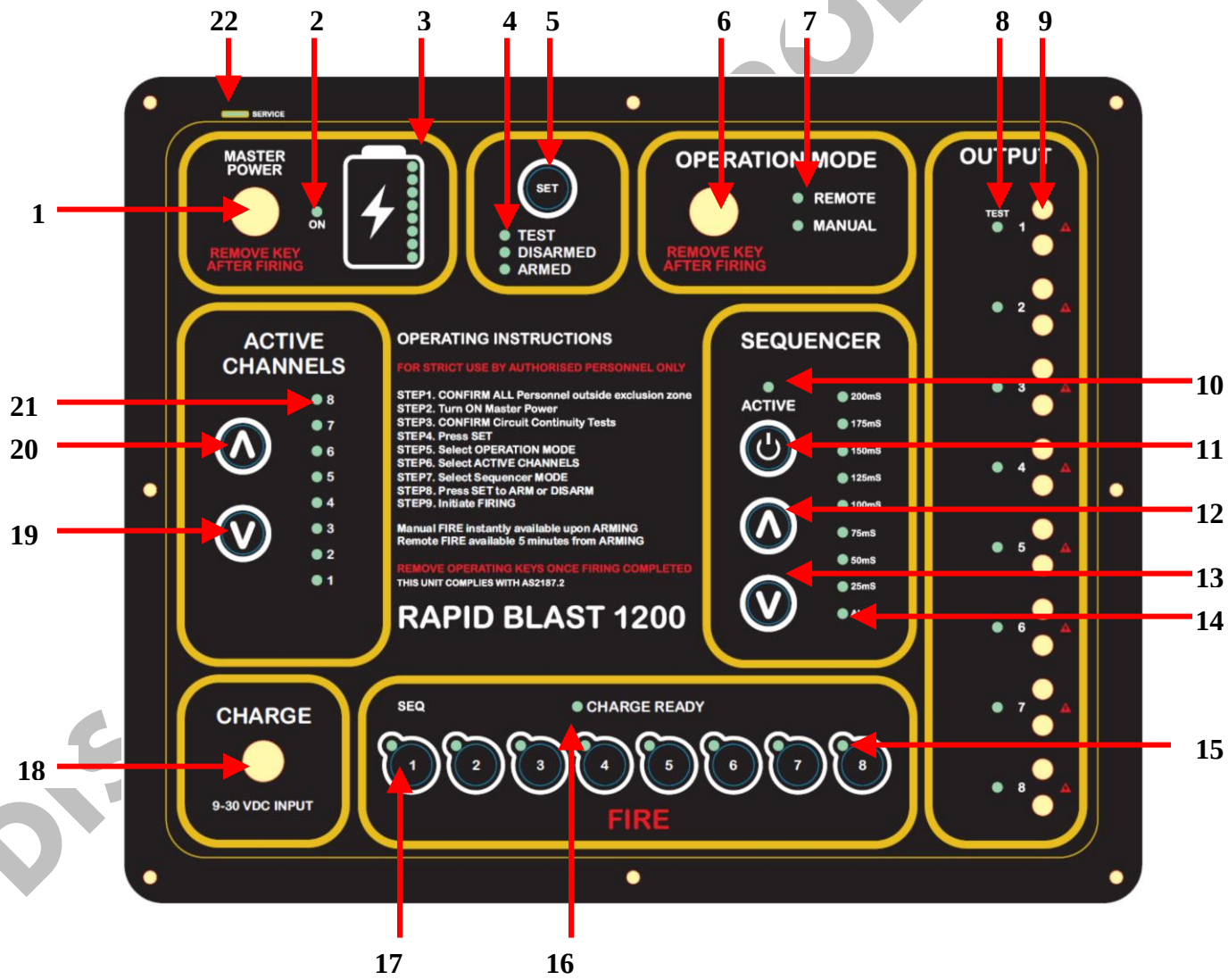
2 PANEL OVERVIEWS

2.1 Receiver/Blast Box Panel



1. Master power key switch

12. Sequential delay increase

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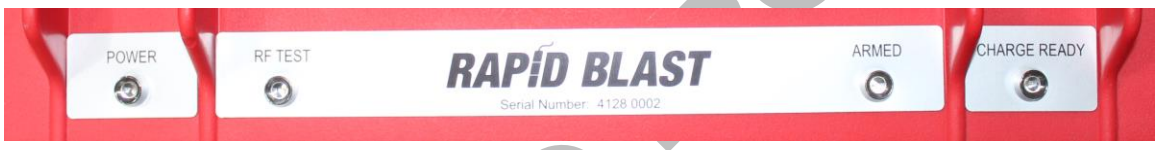
2. Power active indicator
3. Battery level indicator
4. Current system state indicators
5. SET/ARM/DISARM button
6. Operation mode key switch
7. Current operation mode indicators
8. Detonator continuity indicators (TEST MODE)
9. Output terminals
10. Sequencer active indicator
11. Sequencer power button
13. Sequential delay decrease
14. Sequencer timing indicators
15. Channel fired indicators
16. Charge ready indicator
17. Manual FIRE buttons
18. Charge port
19. Active channels decrease
20. Active channels increase
21. Active channels indicators
22. Service indicators

2.2 Receiver Front of Case High Intensity Indicators



1. Power active indicator
2. RF test indicator
3. Armed indicator
4. Charge ready indicator

2.3 Remote Initiator Panel

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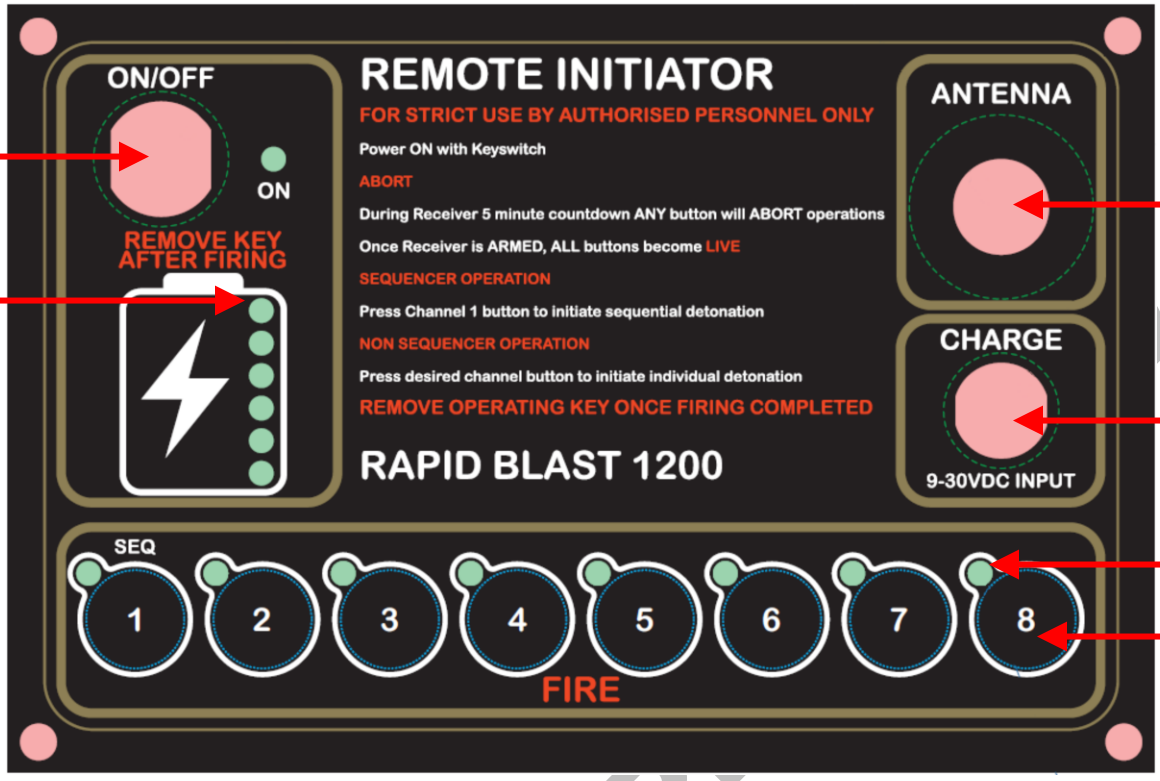

1. Power key switch
2. Power active indicator
3. Antenna port
4. Charge port
5. Available channel indicators
6. FIRE buttons
7. Battery level indicator

3 MODES OF OPERATION

3.1 Test Mode

When the system power is first switched on, the main TEST indicator will flash while the presence of any voltages that could initiate a detonator. TEST MODE is activated only when the system is initially powered on with the MASTER POWER key switch.

Once the system has confirmed zero internal voltage potentials, you will hear the safety relays disengage and the main TEST indicator and REMOTE OPERATION MODE indicator will become constant.

In TEST MODE, each set of output terminals has 12VDC applied at a MAXIMUM current of 20mA, typically 18mA for testing continuity of connected detonator circuits. The TEST indicator located next to each channel output terminal will light when detonator circuit continuity is detected.

TEST MODE also allows for RF signal confirmations to be carried out. By pressing any channel button on the remote transmitter, the BLUE high intensity RF Test indicator

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located on the front of the receiver case will change state. One press turns it on, the next press turns it off. This test can be performed repeatedly while the system is in TEST MODE only.

During TEST MODE, the high voltage supply is disabled and the supply output is short circuited. The high voltage supply is held in this state until the system becomes ARMED. All manual FIRE buttons are made inactive.

Once detonator continuity tests and RF tests have been confirmed, enter SETUP MODE by pressing the SET button. The main TEST indicator will go out, safety relays are re-engaged, continuity testing is disabled and the DISARMED indicator will light.

3.2 Setup Mode

Only when the system is in SETUP MODE, the OPERATION MODE, ACTIVE CHANNELS and SEQUENCER functionality may be adjusted as required.

3.2.1 Active Channels

Active channels may be selected from one channel to all eight channels as required. Any channel left inactive will be non responsive during ALL operations.

3.2.2 Sequencer

Activating the SEQUENCER allows for firing ALL at once or delayed firing between channels. Available delays are: 25mS, 50mS, 75mS, 100mS, 125mS, 150mS, 175mS and 200mS. Only the ACTIVE CHANNELS selected will FIRE in this mode.

NOTE: During SETUP MODE, the high voltage supply is disabled and the output is short circuited. The high voltage supply is held in this state until the system becomes ARMED. All manual and remote initiator FIRE buttons are inactive.

3.3 Remote Operation Mode – Arming and Firing

With the OPERATION MODE key removed, ARM the system for remote operation by pressing the SET button.

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When the system is initially ARMED in remote operation mode, there is a five minute delay before the system will ARM and the high voltage supply becomes active. During the five minutes delay, the front of case red ARMED indicator will flash.

5 flashes and a break – 5 to 4 minutes before system is ARMED
4 flashes and a break – 4 to 3 minutes before system is ARMED
3 flashes and a break – 3 to 2 minutes before system is ARMED
2 flashes and a break – 2 to 1 minutes before system is ARMED
1 flash and a break – Less than 1 minute before system is ARMED
Rapid flashing – Less than 30 seconds before system is ARMED
A constant tone is emitted from the system five seconds before the system is ARMED

The RED ARMED indicator will become CONSTANT when the system is ARMED.

3.3.1 Abort Arming

The SET button on the main unit can be used to ABORT ARMING. ALL other buttons are inactive when the unit is arming or armed in remote operation mode.

ONLY during the five minute arming delay, system arming may be aborted by pressing ANY channel FIRE button on the transmitter. Operation aborted is confirmed when the RED ARMED indicator ceases flashing and only the GREEN SYSTEM POWER indicator can be seen.

3.3.2 Disarming Once Armed

To ABORT the operation and DISARM the system, press the SET button or turn off the MASTER POWER key switch on the receiver/blast box. While it is completely safe to do so with the power of the remote initiator OFF, this should be avoided. The system cannot be disarmed with the remote initiator once the system has armed.

3.3.3 Charge Ready

The WHITE CHARGE READY indicator located on the front of the receiver/blast box will become constant when the system is armed and the high voltage capacitors are charged to full potential rendering the system ready to immediately fire.

3.3.4 Firing

Sequence firing may be initiated by pressing the channel 1/SEQ FIRE button.
Individual firing may be initiated by pressing the desired channel FIRE button.

NOTE:

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Only the ACTIVE CHANNELS selected during SETUP MODE can and will fire. Once all the selected channels have been fired, the system will automatically return to DISARMED mode rendering the system incapable of any further firing.

3.4 Manual Operation Mode – Arming and Firing

With the OPERATION MODE key inserted and switched to MANUAL, the system will become instantly ARMED by pressing the SET button. A three second constant tone is emitted prior to becoming ARMED.

3.4.1 Disarming

Pressing the SET button, changing OPERATION MODE or turning off the MASTER POWER key switch on the receiver/blast box will DISARM the system.

3.4.2 Charge Ready

The green CHARGE READY indicator located on the FIRE panel of the receiver/blast box will become constant when the system is armed and the high voltage capacitors are charged to full potential rendering the system ready to immediately fire.

3.4.3 Firing

A FIRE button must be pressed for longer than 0.5 seconds to initiate a detonator.
Sequence firing may be initiated by pressing the channel 1/SEQ FIRE button.
Individual firing may be initiated by pressing the desired channel FIRE button.
DO NOT press multiple FIRE buttons simultaneously. ALL active channels may be fired simultaneously by setting the sequencer active and selecting ALL.

NOTE:

Only the ACTIVE CHANNELS selected during SETUP MODE can and will fire. Once all the selected channels have been fired, the system will automatically return to DISARMED mode rendering the system incapable of any further firing.

4 POST BLAST PROCEDURE

Conduct the post blast procedures IAW the site rules or company procedures. During the "all clear" procedure, remove the firing cable/s, turn the MASTER POWER keyswitch to

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the OFF position and remove the key from the receiver/blast box. Close the case lid and lock.

Upon removal from the blasting area both the REMOTE INITIATOR and RECEIVER/BLAST BOX cases should be cleaned and checked for serviceability or any damage and placed back in their carry bag prior to storage.

5 SPECIFICATIONS

5.1 Technical Specifications t -5°C to +55°C

PARAMETER	MIN	TYP.	MAX	UNIT
Detonators	1	-	150	2ohm dets
Continuity Test				
Voltage	11.6	12	12.1	VDC
Current	-	17	20	mA
Output				
Voltage	450	460	480	VDC
Firing Time	24.96	25.0	25.05	mS
Battery – Li-Ion				
Voltage	12.9	14.8	16.8	VDC
Ampere Hours – Receiver		4400		mAh
Watt Hours – Receiver		65.1		Wh
Ampere Hours – Remote Initiator		2200		mAh
Watt Hours – Remote Initiator		34		Wh
Operating time (up to)		9		hours
Charging				
Voltage	9	-	30	VDC
Current	-	1.5	-	A
Capacitance				
Per channel	127	141	155	uF
Discharge time after firing		<10		mS

5.2 AS2187.2 – Standards Australia

APPENDIX B
EQUIPMENT FOR ELECTRICAL FIRING

(Normative)

B1 GENERAL

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Clause 2.5 requires that equipment used for testing and firing electric detonators shall comply with the requirements of this Appendix and that, where appropriate, compliance be verified by testing in accordance with the test methods specified herein.

The specification for circuit testers, exploders and firing cables set out in Paragraphs B4, B5, B6 and B7 apply only to equipment used to fire detonators that have no-fire currents in the range of 180mA to 250mA.

NOTES:

1 Group 1 detonators have a bridge resistance of 0.9Ω to 1.6 Ω.

2 The requirements for other types of equipment would normally be set by the regulatory authority.

3 For detonators other than Group 1, the specification for circuit testers, exploders and firing cables should be determined accordingly.

B2 APPROVAL OF EQUIPMENT

In general, exploders and circuit testers will require approval. Equipment shall comply with the following requirements:

(a) The equipment shall pass such tests as the regulatory authority considers necessary to establish their qualities and, in particular, their safety (see Note 1).

(b) The equipment shall comply with any construction and performance specified by the regulatory authority.

(c) The equipment shall be durable, robust, functionally reliable and suitable for use in ambient temperatures normally found in Australia (-5°C to 45°C).

(d) Any enclosing case shall be constructed to prevent ingress of dust or splashed liquids, as far as reasonably practicable.

(e) For exploders and circuit testers, the insulation resistance between the circuit and the case shall be greater than 50 MΩ at 500 V when measured after conditioning for 24h in an ambient temperature of maximum 20°C and relative humidity of at least 90%.

NOTES:

1 Certification to other national or international Codes or Standards may be acceptable.

2 Exploders and circuit testers are electrical instruments and should be accorded the care in handling and use appropriate to such instruments.

B3 CARE OF EQUIPMENT

All equipment shall be maintained in good and efficient condition.

B4 CIRCUIT TESTER

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The circuit tester shall be a special type of ohmmeter, manufactured so that under any operating conditions it will deliver less than 50mA when short-circuited.

NOTE: The use of a battery with an output limited to 50mA is recommended. The scale of the instrument should be graduated to give clear readings from 0.5 Ω upward and for convenience the scale may be divided into two or more ranges.

Any adjustment or replacement of batteries in circuit testers shall be done either by the manufacturer or strictly in accordance with instructions issued by the manufacturer.

The circuit tester shall be reliable in performance and be accurate to within 0.5 Ω or within 7% of true resistance value, whichever is the greatest.

B5 EXPLODER

B5.1 Maintenance

The maintenance of exploders shall be carried out by a competent person. For mechanically operated exploders, the moving parts shall be lightly lubricated, care being taken to prevent excess oil spreading to the commutator and brushes.

NOTE: The interior of the exploders should be kept free from dust and the exterior should be clean and dry. The terminals should be kept clean.

B5.2 Routine testing

The exploder shall be tested by means of the rheostat described in Paragraph B6 or by an alternative means provided by the exploder manufacturer.

Where the rheostat method is used, the rheostat shall be constructed to the specifications of Paragraph B6, together with two detonators, and connected in series across the exploder firing terminals. Both detonators shall be shielded separately, so that one will not initiate the other, and no injury can result to any person in the vicinity. The rheostat shall be set for a rated capacity one unit less than the rated capacity of the exploder. The exploder shall be operated according to prescribed instructions. Both detonators shall fire.

B5.3 Construction

In addition to the general requirements set out in Paragraph B2, the construction of the exploder shall comply with the following:

(a) The exploder shall be provided with a protective case incorporating carrying straps or handles.

(b) The output terminals or connecting arrangements shall be designed and sized so as to allow convenient and secure attachment of firing cables of the size specified in Paragraph B7.

(c) The exploder shall be so constructed that it can be made operable by a removable handle or key, and it shall only be possible to remove this handle or key in the ‘off’ or ‘safe’ position.

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The following types of exploders are available:

(i) *Generator type* Generator type exploders have a dynamo, the armature of which is manually rotated through gearing from either a plunger rack-bar or a twisting handle. They are normally used for series firing.

(ii) *Capacitor type* Capacitor-type exploders have one or more capacitors that are charged from either a battery or dynamo having a manually rotated armature. Capacitor-type exploders are suitable for series firing, and most may be used to a limited extent for firing series-in-parallel circuits.

Capacitor exploders are fitted with a device to indicate when sufficient electrical energy is available to fire the circuit of detonators.

A special variant of capacitor type exploders embodies several capacitors, each of which is used to fire one circuit of detonators. Internal timing controls allow the capacitors to discharge into their detonator circuits at predetermined time intervals thus providing sequential firing.

(iii) *Sequential or sequence switch type* The sequential or sequence-switch-type exploders provide delay firing intervals of predetermined duration. A manually or mechanically rotated sequence switch directs electrical energy to fire each detonator/circuit in turn as the rotating arm passes over the appropriate contact.

B5.4 Maintenance

The exploder shall be labeled as follows:

(a) *Instructions for use* A permanent label of instructions shall be secured to the exploder by screws, rivets or other permanent means.
NOTE: The instructions should be visible during use.

(b) *Removal of key* A prominent label shall be fixed to the front face of the exploder, readily seen when inserting the key with the exploder in or out of its protective case, bearing the words ‘REMOVE KEY AFTER FIRING’ or ‘REMOVE HANDLE AFTER FIRING’, as appropriate.

(c) *Capacity* The capacity expressed in terms of the maximum number of defined detonators or the maximum series circuit resistance that can be fired by the exploder, shall be marked on the exploder.

(d) *Battery* The type of battery required.
NOTE: Leak-proof batteries are recommended.

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B5.5 Electrical design features

B5.5.1 *Firing output*

The exploder shall be capable of producing an output current only with the firing mechanism in one definite firing position. With a connected resistance of $2.1(n + 1)\ \Omega$, where n is the rated capacity of the exploder for any single operation of the firing, the output current shall be as follows:

(a) For a constant output exploder …… 1.4 A for 3.5 ms.

(b) For a capacitance exploder ……..…….. not less than 8mJ/ Ω.

Once a firing output has been produced, the firing controls shall be returned to the 'off' or 'safe' position or otherwise cancelled before another firing output can be produced.

B5.5.2 *Abortion of firing*

The sequence for obtaining a firing output shall be able to be abandoned at any point up to the final firing position without producing an output current.

B5.5.3 *Component malfunction*

The design of the exploder shall be such that a firing output shall not be produced through component malfunction. For the purpose of this Paragraph, 'malfunction' shall include mechanical and electrical failure of a switch, an earth fault on any part of the equipment, and an open-circuit or short circuit occurring on any component or any part of the electrical circuit.

NOTE: It is recommended that at least two components would need to malfunction before an unintentional firing output is produced.

B5.5.4 *Generator-driven exploders*

For exploders whose output is directly provided from a generator, suitable means shall be provided to ensure that current is not put to line until the firing output required by Paragraph B5.5.1 is available.

B5.5.5 *Exploders of the capacitor-discharge type*

For exploders of the capacitor-discharge type, the following requirements apply:

(a) Where the firing circuit is made automatically, no current shall be put to line until the capacitor is adequately charged and the firing output required by Paragraph B5.5.1 is available.

(b) Where the firing circuit is made by a manually operated switch, an indication

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shall be given when, and only when, the capacitor is adequately charged.

(c) When the removable handle or key is removed (see Paragraph B5.3(c))-

(i) the capacitor shall automatically be discharged over a period of not more than 3 s (see Note); and
(ii) the firing terminals shall be short-circuited.

NOTE: A resistor is normally used, as discharging a capacitor by means of a direct short-circuit can damage the capacitor and result in a reduction in capacity of the exploder.

(d) When there is no external circuit connected, adequate provision shall be made to discharge the exploder over a period of not more than 3 s.
(e) In the 'off' or 'safe' position, any battery used in the exploder shall be electrically disconnected from the capacitor.

B6 RHEOSTAT

Where a rheostat is used for testing exploders (see Paragraph B5.2), it shall consist of a suitable variable resistance fitted with stepped contacts or a number of resistances connected to terminals. This may be calibrated in terms of a convenient number of detonators, each contact being clearly marked with the proper number of detonators represented by the contact.

For the purpose of calculating the resistance required between steps, and allowing a factor of safety, 3.2 Ω shall be considered as the resistance for each detonator in the circuit.

B7 FIRING CABLE

Firing cable for use with portable-type exploders, except sequential exploders, shall comply with AS/NZS 3191 and shall be of two-core flexible cord, thermoplastic insulated and sheathed. The cores shall be multi-stranded copper conductors having a minimum cross-sectional area and maximum resistance as follows:

(a) Heavy duty …….. 2.0mm², not more than 2 Ω/100 m of cable.
(b) General duty ……...……. 1.0mm², not more than 5 Ω/100 m of cable.

The cable shall be maintained in a sound condition, care being taken to avoid kinks, cuts and abrasions.

NOTE: A suitable type of heavy-duty cable is 50/0.25mm, preferably yellow in colour.

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5.3 Battery and Charging

The Rapid Blast receiver/blast box and remote initiator both utilize internal Lithium Ion batteries.

A 12/24VDC and 240VAC battery charger is supplied with each system. The receiver/blast box and remote initiator should be charged at least once every four (4) months.

The charger should be kept in the carry bag whilst not in use to avoid loss or damage to the accessory.

All system charge ports are identical allowing any of the supplied chargers to be used with the receiver/blast box or remote initiator.

Both the receiver/blast box and remote initiator are fitted with battery level indicators to allow the operator to immediately know the charge state of the internal batteries prior to use. In cases where immediate firing is necessary and the battery is too low for reliable operation, the 12/24VDC charge adapters may be provided to connect the firing device to an external 12/24VDC battery source if desired.

6 ANNUAL TEST AND COMPLIANCE PREREQUISITE

It is a condition of sale that all Rapid Blast 1200 systems MUST be returned to the manufacturer for test and compliance checking which will include any and all calibrations and/or updates on an annual basis.

IMPORTANT!
Upon completing the registration of this product, (within 14days of purchase), your first annual test and compliance check will be performed free of charge. All future annual test and compliance checks will incur a flat fee which may be subject to change without notice.

If required, you may request a loan system at no extra charge during this time to ensure there is no down time of blasting operations.

If for any reason during the annual test and compliance check, Boom Smart Technologies Pty. Ltd. deems it necessary to replace your registered system, it will do so without any prior notice at its sole discretion and at no extra charge to the consumer.

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7 WARRANTY

What does this warranty cover?

Subject to the exclusions contained herein, BOOM SMART TECHNOLOGIES Pty. Ltd. warrants that this Rapid Blast branded product ("Product") or certified accessory ("Accessory") sold for use with this product that it manufactured to be free from defects in materials and workmanship under normal consumer usage for a period of twelve (12) months from the date of purchase. This Warranty is your exclusive warranty and is not transferable.

Who is covered?

This Warranty extends only to the first consumer purchaser and is not transferable.

What will BOOM SMART TECHNOLOGIES do?

BOOM SMART TECHNOLOGIES Pty. Ltd. or its authorized distributor at its option and within a commercially reasonable time, will at no charge repair or replace any Products or Accessories that do not conform to this Warranty. We may use functionally equivalent reconditioned/ refurbished/ pre-owned or new Products, Accessories or parts.

What Other Limitations Are There?

ANY IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL BE LIMITED TO THE DURATION OF THIS LIMITED WARRANTY, OTHERWISE REPAIR OR REPLACEMENT PROVIDED UNDER THIS EXPRESS LIMITED WARRANTY IS THE EXCLUSIVE REMEDY OF THE CONSUMER, AND IS PROVIDED IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. IN NO EVENT SHALL BOOM SMART TECHNOLOGIES Pty. Ltd. OR RAPID BLAST SYSTEMS Pty. Ltd. BE LIABLE, WHETHER IN CONTRACT OR TORT (INCLUDING NEGLIGENCE) FOR DAMAGES IN EXCESS OF THE PURCHASE PRICE OF THE PRODUCT OR ACCESSORY, OR FOR ANY INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, OR LOSS OF REVENUE OR PROFITS, LOSS OF BUSINESS, LOSS OF INFORMATION OR OTHER FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE ABILITY OR INABILITY TO USE THE PRODUCTS OR ACCESSORIES TO THE FULL EXTENT THESE DAMAGES MAY BE DISCLAIMED BY LAW.

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Exclusions

Normal Wear and Tear. Periodic maintenance, repair and replacement of parts due to normal wear and tear are excluded from coverage.

Batteries. Only batteries who's fully charged capacity falls below 80% of their rated capacity and batteries are covered by this Warranty.

Abuse & Misuse. Defects or damage that result from: (a) improper operation, storage, misuse or abuse, accident or neglect, such as physical damage (cracks, scratches, etc.) to the surface of the product resulting from misuse; (b) contact with liquid, water, rain, extreme humidity, sand, dirt or the like, extreme heat; (c) subjecting the Product or Accessory to abnormal usage or conditions; or (d) other acts which are not the fault of BOOMSMART TECHNOLOGIES Pty. Ltd. or RAPID BLAST SYSTEMS Pty. Ltd., are excluded from coverage.

Use of Non-Boom Smart Technologies branded Products and Accessories. Defects or damage that result from the use of Non-Boom Smart Technologies Pty. Ltd. branded or certified Products or Accessories or other peripheral equipment are excluded from coverage.

Unauthorized Service or Modification. Defects or damages resulting from service, testing, adjustment, installation, maintenance, alteration or modification in any way by someone other than BOOM SMART TECHNOLOGIES Pty. Ltd. or RAPID BLAST SYSTEMS Pty. Ltd. are excluded from coverage.

Altered Products. Products or Accessories with (a) serial numbers or date tags that have been removed, altered or obliterated; (b) broken seals including electronic seals or that show evidence of tampering; (c) mismatched board serial numbers; or (d) nonconforming or non-BOOM SMART TECHNOLOGIES Pty. Ltd. branded housings or parts are excluded from coverage.

How to Obtain Warranty Service or Other Information?

To obtain service information please contact us:

Email: customerservice@tjpe.com.au

Web: www.tjpe.com.au

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8 DISCLAIMER

The manufacturer reserves the right to modify products without prior notice. All information herein is believed up-to-date and the time of publication. Because Boom Smart Technologies Pty. Ltd. cannot anticipate or control the conditions under which this information and its products may be used, Boom Smart Technologies Pty. Ltd. does not take any responsibility for their suitability for use in any particular application other than liabilities implied mandatorily by law and which cannot be disclaimed. The user is expressly responsible to verify the suitability of the information and the product for use in any particular application. Boom Smart Technologies Pty. Ltd's general terms and condition of contract, a copy of which is available upon request, apply to all sales and are incorporated by reference.

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