Abrasion Tester

Operating Instructions

PB-8100
PB-8101

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Abrasion

Coated and uncoated surfaces need to be tested for resistance to abrasion caused by a brush, sponge, or other means. Examples for testing include interior paints, wall coverings, carpets, floor tiles, polishes, bathtubs, shower stalls, and furniture.

Abrasion instruments producing repeated small-scale patterns of damage caused by attrition or erosion under controlled conditions simulate best everyday use or wear patterns. The rubbing method may also be used to test efficiencies of detergents or cleansers, as well as, the durability of an abrading or cleaning device such as a scouring pad.

BYK-Gardner Abrasion Tester

The BYK-Gardner Abrasion Tester helps evaluate washability and abrasion resistance of a material. The tester reciprocates an abrasive force linearly over the sample.

Reciprocating linear motion at 37.0 ±1 cycles per minute with a constant speed over a 10 inch travel distance.

Utilizes a brush, sponge, or abrasive paper to simulate real life situations that must meet several standards.

Completely enclosed electrical and mechanical components – for dry or wet testing.

Preset countdown counter with automatic shut-off and standard cycle counter provided for versatile testing.
Heavy-duty drive system allows for easy maintenance and a long-life.

Meets ASTM D2486...see section 2 for a complete list of parts needed.

The drive mechanism consists of a gearhead motor driving the motor drive pulley gear. The rotary motion of this gear drives a smaller gear, the chain drive pulley using a timing belt. The smaller gear drives a set of sprockets and continuous loop mechanism. The cable pair ends are attached to the virtual center of the chain, transforming the rotary motion of the chain into the reciprocating linear motion.
The BYK-Gardner Abrasion Tester provides a means of evaluating washability, wet abrasion or other abrasion resistance parameters of a material. The mechanism reciprocates an abrasive device linearly over the sample using a predetermined loading force.

The drive mechanism consists of a gearhead motor driving the motor drive pulley gear. The rotary motion of this gear drives a smaller gear, the chain drive pulley, using a timing belt (drive belt). The smaller gear drives a set of sprockets and continuous loop chain mechanism. The cable pair ends are attached to the virtual center of the chain, transforming the rotary motion of the chain into a reciprocating linear motion.

The abrasive device is attached to the ends of the cable pair. When the BYK Gardner Abrasion Tester is activated the abrasive device is reciprocated over the sample.

**Inspection**

Each instrument, and all accessories and options have been carefully inspected before shipment. Before attempting operation, please check over your instrument to ensure that no damage was sustained in transit. If there is damage, immediately notify BYK-Gardner as well as the carrier.

Please check to ensure that all of the items ordered are enclosed, including any options contained within your instrument and all standard or optionally purchased.

**Power Requirements**

*Line Voltage*

The abrader operates from normal power line voltages of either 115 VAC or 230 VAC.
Frequency
The abrader operates over the range of 47 to 63 Hz. However, the speed variance will be proportional to the frequency.

Power Consumption
The abrader requires a maximum of 300 watts.

Grounding Requirements

The National Electrical Manufacturers Association (NEMA) recommends that the chassis be grounded separately from the power return. In accordance with this recommendation, we have provided a three conductor power cable that, when connected to a properly grounded receptacle, grounds the chassis.

CAUTION
To protect operating personnel, do not operate the abrader from an AC source that has no ground connection. Do Not use a two-wire adapter.

Circuit Protection
Circuit protection is provided by the circuit breaker/switch mounted on the front panel.

If the breaker is tripped, disconnect the abrader from the power source and carefully check all electrical and moving mechanical components for the condition that caused the failure. Correct any condition found before attempting to operate.
ASTM

ASTM D 1792, D 2198, D 2486, D 3206, D 3450

FTMS

FTMS 141a, Method 6141 & Method 6142

Federal Specifications

Federal Specification P-C-431a, P-D-220a, P-R-201b, P-W-155, T-1279D, TT-P-18, TT-P-22,
TT-P-23a, TT-P-26a, TT-P-29b, TT-P-30, TT-P-47a, TT-P-51d, TT-P-88a, TT-P-508

Military Specifications

Military Specification MIL-C-3004, MIL-C-46057, MIL-E 11237, MIL-P-13340A, MIL-P-15422B

Other Specifications

Navy Specification 51C20C
Rock Island Arsenal Specification RIX-268
Commonwealth of Pennsylvania Specification W-4
Canadian Government Specification 26-GP-3a

ASTM D 2486 Scrub Resistance of Interior Latex Flat Wall Paints

Following Items Needed
PB-8100 / 01 Abrasion Tester
PB-8110 Brush Holder and Mat
PB-8112 Nylon Brush
PB-6978 Lilly Frame
PB-6979 Brass Shim
PB-6980 Polished Glass Plate
PB-5015 Black Scrub Panels
PB-5016 White Scrub Panels
PB-8129 / 30 Scrub Medium
PA-2230 Dow Latex Film Applicator
ASTM D 2486, Standard Test Method for Scrub Resistance of Wall Paints

Interior wall paints often become soiled especially near doorways, windows and in work and play areas. This test method covers determination of the relative resistance of different wall paints to erosion when repeatedly scrubbed to remove the stains encountered during the life of the paint.

Procedure

The test paint is applied to a black plastic panel. After curing, the coated panel is placed over a shim and held in place on a glass plate on the abrasion tester. It is then scrubbed with a nylon bristle brush and an abrasive scrub medium until failure occurs over the shim.
Operation

Unpacking

The BYK-Gardner Abrasion Tester is packaged in a single cardboard carton, the accessories will normally be shipped at the same time and frequently in the same carton. Carefully unpack all components and check each item against the packing list.

Assembly

The cables are held together by a wire bracket which in use will be replaced by the abrasion device holder. This bracket should be kept for use when repairing, storing or shipping the instrument.

Set-Up

1. Place the instrument on a firm, vibration free surface. Level the instrument using the adjustable legs and lock them into position.

2. The sample pan is used to contain liquid and debris and to protect the instrument. Position the pan as shown in Figure 1.

Figure 1 Up close picture of pan placement on the PB-8100 Abrasion Tester.

If accessories such as the Lilly Frame or polished plate glass are to be used, these should be placed in the pan and the most appropriate method of clamping should be used.
3. Prepare samples according to the test procedure (One example is in Figure 2). If a procedure has not been specified, refer to an appropriate ASTM or other standard. The sample is to be placed in the pan and properly secured.

Figure 2 Sample preparation example.

4. Select the abrasive device appropriate for the test and its holder, e.g., hog bristle brush and holder, nylon bristle brush and holder, sponge and holder, etc.

5. Replace the wire bracket holding the cable ends with the abrasive device holder. See Figure 1. Store the bracket for future use.

When using a brush, a rubber mat (approximate dimensions: 40 mm x 89 mm x 3 mm) must be placed in the holder. Insert the brush, sponge or other device into its holder.

**Controls**

All of the controls for the BYK-Gardner Abrasion Tester are located on the instrument’s right side. The controls are: POWER, RUN, and the counter with its RESET button. See the diagram in Figure 3.
NOTE: A New and Improved Digital counter has been installed on your unit.

Controls

All of the controls for the BYK-Gardner Abrasion Tester are located on the instrument’s right side. The controls are **POWER, RUN** and the digital counter with the **RED RESET** button.

1. Set the number of cycles desired using the Preset Count Keys. This is accomplished by pressing the Preset Count Key under each Preset Count Display number until you get the total number of cycles desired.

2. To Reset the Counter Display to zero, press the Reset Key.

3. Press the power switch **ON**. On 110 volts units, the power switch will illuminate when the abrader is properly connected to the mains and the power is on.
4. To begin the abrasion testing sequence, press the **RUN** switch.

The counter counts up one count for each completed cycle (back and forth equals one cycle). After the number of cycles preset on the counter is complete, the instrument will automatically shut off. On 110 volt units, the power switch light will remain illuminated.

5. If it is necessary to stop the action of the machine prior to completion of the preset count, press the bottom of the **POWER** switch, turning the power off.

To restart the test after interruption, press the **POWER** switch to the **ON** position, press the **RUN** button and the instrument will resume operation without affecting the cycles count.
<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>PROBABLE CAUSE</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>No movement of abrasive device</td>
<td>Power cord not plugged into operating AC main</td>
<td>Plug into mains</td>
</tr>
<tr>
<td></td>
<td>Circuit breaker tripped or fuse blown</td>
<td>Reset breaker or fuse</td>
</tr>
<tr>
<td></td>
<td>Broken timing belt</td>
<td>Replace belt</td>
</tr>
<tr>
<td></td>
<td>Broken chain</td>
<td>Replace chain</td>
</tr>
<tr>
<td></td>
<td>Cover not closed properly</td>
<td>Close cover</td>
</tr>
<tr>
<td></td>
<td>Safety interlock switch malfunction</td>
<td>Replace interlock switch</td>
</tr>
<tr>
<td>Counter does not Cycle properly</td>
<td>Microswitch malfunction</td>
<td>Replace interlock switch</td>
</tr>
<tr>
<td></td>
<td>Counter failure</td>
<td>Replace counter</td>
</tr>
<tr>
<td>No automatic shut-off</td>
<td>Plastic access cover not closed</td>
<td>Close access cover</td>
</tr>
</tbody>
</table>
It is assumed that the person responsible for maintaining and servicing this equipment has expertise in mechanics and electronics and has been trained in machine maintenance.

**WARNING**
Always disconnect the abrader from the mains before servicing.

**Cables**

*Periodic Inspection*
Check the cable every 50,000 cycles or more frequently if a load greater than 5 pounds is being applied. Visually inspect the cable for fraying, cuts, kinks or wear. Replace the cables as a set if any sign of wear is observed. The procedure is found in Section 8.

*Cable Tension*
The tension on the cables should be adjusted with the abrasive device in place. Adjust the nuts at the chain end of the cable until the cable is taut. If the cable adjustment has been adjusted to its maximum, replace the cable pair. Refer to section 8 for directions.

**Drive Belt**

**WARNING**
Always disconnect the abrader from the mains before servicing.

*Periodic Inspection*
Check the belt every 200,000 cycles or more frequently if a load greater than 5 pounds is being applied. Visually inspect for cracks, frays,
britleness, missing or damaged teeth or other signs of deterioration.

*Belt Tension*

The belt tension should be checked each 100,000 cycles. It should deflect no more than $\pm 1/2$ inch with normal finger pressure (approximately one pound pressure) applied at the midpoint between the pulleys.

**Chain**

*WARNING*

Always disconnect the abrader from the mains before servicing.

*Periodic Inspection and Maintenance*

Check the chain every 250,000 cycles or more frequently if a load greater than 5 pounds is applied. Visually inspect the chain for link damage, faulty master link or an unusual wear pattern.

*Chain Tension*

The chain tension should be inspected every 100,000 cycles. The total excursion of the chain should not exceed 1-1/2 inch when moved by hand.

**Cable Pulleys**

*WARNING*

Always disconnect the abrader from the mains before servicing.

*Periodic Inspection*

Every 250,000 cycles or more frequently if heavy loads are applied, visually inspect all four pulleys for:
a) Instability
b) Excessive wear
c) Binding

If any of these conditions exist, the pulleys should be replaced.

COMPONENT REPLACEMENT

Belt Replacement

No tools are required to effect a belt change. Clear any residue that may be present from the belt failure. Place the new belt over the chain drive pulley holding the belt in position around the pulley. With the belt fully extended, start the belt engagement by slipping the belt over the leading edge of the motor drive pulley. Rotate the drive motor pulley counterclockwise, as viewed from the rear of the motor, while pulling the belt towards the motor until it is centered on the motor drive pulley.

The tension of the belt should be adjusted, if necessary, so that with normal finger pressure (approximately one pound) the movement observed is ±1/2 inch (one inch total). If not, adjust the motor position so that the correct tension is obtained. This is accomplished by loosening the four motor mounting screws. The motor is retained by these four bolts which pass through slots in the baseplate permitting adjustment along the belt axis. After the adjustment is complete and the proper tension is achieved, tighten the bolts securely.

Close and secure the cover, connect the instrument to the mains voltage and start the unit. After 10 cycles stop the instrument, remove it from the mains voltage, open the cover and inspect the belt for proper tension and position. Close and secure the cover.
Cable Replacement

Cable pairs, consisting of one left and one right side, are supplied as a set and we recommend that the complete set be replaced should a failure occur in either cable. Two 3/8 inch open end wrenches are required to effect a cable change.

Rotate the chain until the carrier is in the top center position. Loosen and remove the left cable-locking nut. Remove the left cable from the carrier. Before discarding the old cable, position the tension adjuster nut on the new cable approximately in the same position as it occurred on the old cable.

Install the left-hand cable and hand tighten the left cable-locking nut.

Loosen and remove the right cable jam nut. Remove the cable tension adjuster nut. This permits the compression spring, the spring retention washer and the right hand cable to be removed. All parts may be discarded as they are provided with the replacement set of cables. Reassemble the right hand cable on the carrier.

After looping the cable around the four pulleys, install the cable retention bracket in place of the abrasive holder.

Rotate the motor drive pulley by hand. At the extremes of drive position, observe that there is not a mechanical interference with either pulley. If there is interference, adjust the left and right cable tension adjuster nuts until the interference is eliminated.

Tighten the jam nuts on both the left and the right sides. Close and secure the cover, connect to the AC mains, turn the instrument on and verify the proper installation by observing at least the first ten cycles.
NOTE

If you have any questions or problems, please contact our representative in your area, or BYK-Gardner USA.
<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>PB-8110</td>
<td>Brush Holder and Mat</td>
<td>Needed for ASTM D 2486; Holds brushes listed below; Dimensions 1.5 x 3.5 inches</td>
</tr>
<tr>
<td>PB-8111</td>
<td>Hog Bristle Brush</td>
<td>Non-perforated</td>
</tr>
<tr>
<td>PB-8112</td>
<td>Nylon Brush</td>
<td>Meets ASTM D 2486</td>
</tr>
<tr>
<td>PB-8113</td>
<td>Hog Bristle Brush</td>
<td>Perforated for ANSI method Z 124.1</td>
</tr>
<tr>
<td>PB-8115</td>
<td>Sponge Holder (7.6 x 9.5 cm)</td>
<td>Dimensions: 3 x 3.75 inches</td>
</tr>
<tr>
<td>PB-8116</td>
<td>Sponge</td>
<td></td>
</tr>
<tr>
<td>PB-8129</td>
<td>Scrub Medium Abrasive, 1 pint</td>
<td>Needed for ASTM D 2486; Extremely uniform medium for performance of scrub tests; Simulates effect of commercial cleaning compounds; Abrasive medium contains silica for accelerating the tests.</td>
</tr>
<tr>
<td>PB-8130</td>
<td>Scrub Medium Non-abrasive, 1 pint</td>
<td>Needed for ASTM D 2486; Non-abrasive</td>
</tr>
<tr>
<td>PB-8119</td>
<td>Liquid Container</td>
<td>For containing wet solution for testing; 1200ml capacity; Comes with mounting stand</td>
</tr>
<tr>
<td>PB-8120</td>
<td>Lilly Frame</td>
<td>Needed for ASTM D 2486; For confining media to area of path of brush or sponge; Rubber gasket with adjustable width; Includes 4 “C” clamps; Length: 17.1 inches</td>
</tr>
<tr>
<td>PB-8121</td>
<td>Frame</td>
<td>Similar to Lilly Frame; Fixed path width for use with brushes only; Includes 4 “C” clamps</td>
</tr>
<tr>
<td>PB-8122</td>
<td>Brass Shim</td>
<td>Needed for ASTM D 2486; For attaching to middle of glass test plate under scrub panel; Dimensions: 6.5 in x 0.5 in x 10 mils</td>
</tr>
<tr>
<td>Part No.</td>
<td>Description</td>
<td>Additional Information</td>
</tr>
<tr>
<td>---------</td>
<td>------------------------------------------</td>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td>PB-8128</td>
<td>Set of Steel Cables</td>
<td>One pair of cables</td>
</tr>
<tr>
<td>PB-8135</td>
<td>Replacement Sample Pan</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PB-5015</td>
<td>Black Scrub Panels</td>
<td>Needed for ASTM D 2486; Dimensions: 6.5 in x 17 in x 10 mils</td>
</tr>
<tr>
<td>PB-5016</td>
<td>White Scrub Panels</td>
<td>Needed for ASTM D 2486; Dimensions: 6.5 in x 17 in x 10 mils</td>
</tr>
<tr>
<td>AR-3715</td>
<td>Scrub Test Calibration Panels, Type A</td>
<td>Form P121-A for poor scrub resistance</td>
</tr>
<tr>
<td>AR-3716</td>
<td>Scrub Test Calibration Panels, Type C</td>
<td>Form P121-C for good scrub resistance</td>
</tr>
<tr>
<td>PB-6980</td>
<td>Polished Glass Plate</td>
<td>Needed for ASTM D 2486; Dimensions: 6.5 x 17.9 x 0.25 in (16 x 45 x 0.6 cm)</td>
</tr>
</tbody>
</table>
### Ordering Information

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>PB-8117</td>
<td>Sandpaper Attachment</td>
<td>Meets MIL-E-11237 specifications; For testing with grades of sandpaper for resistance; Includes semihard rubber mat and 10 yards each of 1/0 and 3/0 memory cloth, 2 inches wide</td>
</tr>
<tr>
<td>PB-8118</td>
<td>Weight for Sandpaper</td>
<td>Total weight of sandpaper attachment and weight is Attachment 4.5 lb (2 kg)</td>
</tr>
<tr>
<td>PA-2230</td>
<td>Dow Latex Applicator</td>
<td>Needed for ASTM D 2486; Two edged applicator for paint to plastic scrub panels; One gap of 5.25 in width and 7 mils clearance and one gap 5.5 in width and 10 mils clearance.</td>
</tr>
</tbody>
</table>
General

Orders submitted on Buyer's own Purchase Order forms, which contain statements, clauses, or conditions modifying, adding to or inconsistent with the terms and provisions herein contained, are accepted by Seller only upon condition and with the express understanding that the liabilities of Seller shall be determined solely by its own terms and conditions of sale, and in accepting and consummating any such order Seller shall be deemed not to have in any way modified its liabilities or obligations as fixed by such terms and conditions of sale as stated by Seller herein, and unless written notice to the contrary is received by Seller within ten (10) days, additional terms contained herein shall become part of Buyer’s contract with Seller.

Warranties

Seller’s Products: Seller warrants all apparatus manufactured by it to be as described herein and to be free from defects in material and workmanship under normal use and service. Seller’s obligation under any warranty is limited to and Buyer’s exclusive remedy hereunder shall be, repair or replacement, F.O.B. Seller’s factory, of any defective parts, when returned to Seller by Buyer, transportation prepaid, which Seller’s examination discloses to have been factory defective. THIS WARRANTY IS IN LIEU OF ANY WARRANTY OF MERCHANTABILITY, OR FITNESS, OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED. The time limit of this warranty is one year from date of shipment of new apparatus unless otherwise specified in Seller’s Catalog. Seller shall not be liable for consequential damages, in any event. Other Products: Other items sold by Seller are sold under the brand or trade name of their respective
manufacturers. ALL SUCH OTHER PRODUCTS ARE SOLD WITHOUT ANY WARRANTY OF MER-
CHANTABILITY, OR FITNESS, OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED. However, to
the extent any such other products are warranted by their manufacturers, or others, for the benefit of
Buyer, Seller will use its best efforts to assist Buyer in forwarding any warranty claim to the party
responsible for its disposition. Seller shall not be liable for consequential damages. Repaired Pro-
ducts: All repair work done by Seller is warranted to be free from defects in material or workmanship
under normal use and service. Seller’s obligation under this warranty is limited to, and the exclu-

ive remedy hereunder shall be, repair or replace-
ment, F.O.B. Supplier’s factory, or any defective parts installed by Seller, when returned to Seller,
transportation prepaid, which Seller’s examinati-
on discloses to have been factory defective. The
time limit of this warranty is three (3) months from
date of shipment. THIS WARRANTY IS IN LIEU
OF ANY WARRANTY OF MERCHANTABILITY, OR
FITNESS, OR ANY OTHER WARRANTY, EXPRESS
OR IMPLIED. Seller shall not be liable for con-
sequential damages, in any event. Expendable
Items: This Warranty does not cover expendable
items such as lamps, fuses, etc. IMPORTANT: This
Warranty is void if the user has made unauthorized
repairs, improper installation, or improper use of
the instrument.

Patent Protection

Seller agrees to indemnify and save harmless
Buyer against all damages and costs that may be
directly and reasonably occasioned by or required
for the defense, appeal, settlement, or other
necessary disposition of any action at law, suit in
equity or counterclaim instituted by a person, firm
or corporation against Buyer, which alleges that
the equipment purchased hereunder infringes a
claim or claims of any United States Letter Patent; provided Buyer has met and is meeting all terms and conditions of this contract and, the equipment is being used in accordance with Seller’s instructions relating thereto; and provided further that Buyer promptly notifies Seller in writing of any charge of infringement; and provided further that the defense of such action, suit or counterclaim shall be under the direction and control of Seller, and all necessary information, assistance, and authority shall be furnished by Buyer. It is further expressly stated and agreed that this patent indemnity shall only apply where the specification, design and method of operation of the equipment furnished hereunder originated in Seller. Where the specification, design, or method of operation of the equipment furnished hereunder originated in Buyer, Buyer agrees to indemnify and save harmless Seller in the same manner as set forth above.

**Deliveries**

Every effort will be made to fill orders within the time promised, and Seller expects to keep such promises unless prevented by inability to procure materials, strikes, fires, accidents, or other uncontrollable causes.

**Terms and Payments**

All bills are due and payable within thirty (30) days after date of invoice. If, in the judgment of Seller, the financial condition of Buyer does not justify continuance of production or shipment on the terms specified, Seller may require full or partial payment in advance, or the acceptance by the Buyer of C.O.D. deliveries.

**Credit Balance**

Customer agrees that any credit balances issued will be applied within one (1) year of its issuance.
IF NOT APPLIED OR REQUESTED WITHIN ONE (1) YEAR, ANY BALANCE REMAINING WILL BE SUBJECT TO CANCELLATION, AND SELLER SHALL HAVE NOT FURTHER LIABILITY

Returns

Return authorization must be obtained before returning equipment for any reason. Seller may refuse delivery of goods returned without authorization.

Shipment

When ordering, Buyer should explicitly state the method of shipment preferred, and in the absence of shipping directions, Seller will use discretion in method of shipment. Shipments will only be insured at Buyer's request and expense.

Claims

All materials are sold F.O.B. Seller's factory (unless otherwise specified), and Seller's responsibility ends upon delivery to first carrier. All claims for loss or damage must be rendered by the consignee against the transportation company within fifteen (15) days of receipt. A copy of this notice shall also be forwarded to Seller within five (5) days of receipt.

Cancellations

Orders may be cancelled by Buyer only upon written notice, and upon payment to Seller of reasonable and proper cancellation charges.

Sales and Similar Taxes

Any tax imposed by any present or future law of Federal, State or any other government authority on the manufacture and/or sale of the articles covered by this quotation, shall be added to the amount to be paid by Buyer.
Instructions in case of Breakage, Damage, Shortage, or Incorrect Shipment Breakage or Damage

Freight, Express or Truck Delivery

NOTE

According to the contract terms and conditions of the carrier, the responsibility of the shipper ends at the time and place of shipment. The carrier then assumes full responsibility for the shipment.

1. Notify local agent of the transportation company immediately

2. Hold damaged goods with container and packaging for inspection of examining agent. Do not return any goods to Seller prior to inspection and authorization of transportation company.

3. File claim against transportation company. Substantiate claim by examining agent’s report. Certified copy of Seller’s invoice will be available upon request. Original B/L is attached to Seller’s original invoice. If the shipment was prepaid, write for receipted transportation bill.

4. Advise Seller of need for replacement.

Parcel Post Shipment

1. Notify Seller at once in writing, giving details of the loss or damage. This information is required for Seller to file a claim with its insurance company.

2. Hold damaged goods with container and packaging for possible inspection by postal authorities.

3. Advise Seller of need for replacement.
United Parcel Service

1. Contact local UPS office regarding damage and insurance claim.

2. Retain container and packing.

3. Each UPS office has different methods of handling claims, and will advise regarding its procedures.

4. Advise Seller of need for replacement.

Shortage

1. Check packing list notations. The apparent shortage may have been marked as an intentional short-shipped (Back Ordered) item.

2. Re-inspect container and packing material, particularly for the smaller items.

3. Ascertain that the item was not removed by unauthorized personnel prior to complete unpacking and checking.


Incorrect Shipment

1. If material received does not correspond with Buyer’s order, notify Seller immediately referencing order number and item.

2. Hold incorrect items until return shipping instructions are received.

Returns

DO NOT RETURN ANY DAMAGED OR INCORRECT ITEMS UNTIL SHIPPING INSTRUCTIONS ARE RECEIVED. NOTE: Unless the above procedures are followed, and Seller is notified within fifteen (15) days, Seller cannot accept responsibility.