



## Key Tape Disintegrator - Model KD-100

**SECURE -- FAST -- LOW COST -- SIMPLE-TO-USE COMPACT -- LIGHT-WEIGHT -- RUGGED -- QUIET -- SAFE ENVIRONMENT-FRIENDLY -- LOW-POWER -- EASY MAINTENANCE ELEGANT CRYPTO-STROYER® TECHNOLOGY**

Fast, Complete, Highest-Security Destruction of Cryptographic Key Tape

THIS INFORMATION UPDATED: 1 May 04

**NOTE 1. If you expect to do HIGH-VOLUME Key Tape DESTRUCTION (more than a few 10" segments per day), the External Vacuum Configuration is HIGHLY RECOMMENDED!**

We have found that our Customers are using the KD-100 for much higher volume than originally anticipated by them, or intended by the design. The original design was targeted at low volume usage. KD-100 can process much higher volume with the External Vacuum Configuration. Details below.

**NOTE 2. NEW! Long-Life Cutter!** Starting February, 2004. We shipped all new machines with this new Cutter, and we started supplying it as a replacement part, at SAME COST as Old Cutter.

**Old (gold-colored) Cutter wears out at about 160 minutes.  
New (black-colored) Cutter lasts 600 minutes!**

We upgraded the Black Cutter AGAIN, after exhaustive testing.

**NEWEST (also black-colored) Cutter lasts 750 minutes!**

Beginning April 7, 2004, SN-02-3058 and up, we shipped all new machines with this new Cutter, and we started supplying it as a replacement part, at SAME COST as Old Cutter.

All machines have always been marked with Rated Cutter Life, since the beginning.

ALL Replacement Long-Life Cutters are shipped with a Rated Cutter Life Label, to be affixed to the machine when the User installs the new Cutter.

Whenever we upgrade the cutter in a machine, we add a Rated Cutter Life Label to that machine prior to sending it out.

**Department of Defense APPROVED for TERMINAL DESTRUCTION of PAPER, PMP, and PLASTIC CRYPTOGRAPHIC KEY TAPE.**

Authority: Letter of Approval, 20 March 2002. For verification, please call DOD at 301 688-6816.

**High Performance:** FAST! ONE SEGMENT (10.2") disintegrated in 4 SECONDS. Equivalent Throughput: 13 Ft/Min = 4 meters/min Covert Operation: Possible with slower throughput. Emergency High-Volume Operation Procedure: 1. Snap open lid 2. Remove bag 3. Insert Exhaust Tube 4. Run it!

**SECURE:** 1. Your critical DATA is reduced to a fine POWDER! 2. Far Exceeds all requirements for destruction of the most sensitive data. 3. POWER-FAILURE SAFE: You can just pull the tape out. 4. Simple use for an unskilled operator, even under high stress conditions.

**LOW COST:** Designed and produced for very low cost.

**COMPACT:** 8 x 10 x 6-1/2"(h) = 205 x 255 x 65 mm

**LIGHT:** 9.1 lbs. = 4.1 kg

**LOW POWER:** 300 watts, 100-130 VAC, 50-60 Hz. Euro (200-240v) version available. Practical to use with our low-cost optional back-up battery system.

**QUIET:** 75 dBA, measured at operator's ear. Suitable for office environment.

**SIMPLE CONTROL:** Illuminated Power Switch (ON-OFF)

**EASY OPERATOR REQUIREMENTS:** No special skill required. Rotate 90 degrees to suit right-handed or left-handed operator. Simply insert the tape and switch on the power. Switch off when done.

**SUPERIOR RESIDUE PROCESSING AND DISPOSAL:** No toxic fumes. No airborne dust. Low-Cost Disposable Filter Bag, quickly and easily changed.

**ENVIRONMENT - FRIENDLY:** Makes a cool, harmless powder. No high temperatures. Just discard vacuum bag.

**EXTREMELY SIMPLE AND SAFE TO USE:** No doors or drawers to open - No buttons to push No latches, catches, levers or hasps to operate No exposed moving parts to worry about.

**FULLY AUTOMATIC:** Just insert the tape and turn it on. Just turn it off when you are done. KD-100 automatically pulls the tape in and disintegrates it.

#### **SMALL, LIGHT WEIGHT, DESK-TOP DESIGN**

#### **ELEGANT DESIGN - LOADED WITH FEATURES:**

Precision Long-Life Disintegrator Cutter System with AML's advanced, exclusive Crypto-Stroyer© Technology. Patents pending. Powerful Integral Residue Vacuum Collector/Bagger Ultimate Simplicity - ONE motor does all this:

- a) Disintegrates the tape
- b) Operates residue vacuum collection system
- c) Operates the power tape feed
- d) Operates the automatic self-adjustment system

**RUGGED:** Heavy-Duty NEMA 4X Fiberglass sculptured, gasketed enclosure

**SIMPLE TO CLEAN AND MAINTAIN:** No lubrication required. Quick and easy replacement of Cutters, Rollers, etc. Timer indicates when service is required just like a car's odometer.

#### **LOW COST OF OWNERSHIP:**

1. Long life - over 9500 segments, with NEW CUTTER (above).
2. Rugged, long-life motor, mechanical and electrical components.
3. MTTR (Mean time to repair): Approx. 30 minutes.
4. Quickly replaceable wear-related components.
5. No special skill or tools needed to take apart, repair, adjust, or assemble.

## **MODELS**



**IMPORTANT NOTICE: If you expect to do HIGH-VOLUME Key Tape DESTRUCTION (more than a few 10" segments per day), the External Vacuum Configuration is HIGHLY RECOMMENDED! We have found that our Customers are using the KD-100 for much higher volume than originally anticipated by them, or intended by the design. The original design was for low volume usage. The KD-100 can process much higher volume with the External Vacuum Configuration. Details below.**

**KD-100-120** Key Tape Disintegrator, for 100-120 VAC 50-60 Hz, 1 Phase, 3 Amps **Please don't forget to order extra bags! CAPACITY: 100 segments per bag.** (This capacity was determined by overall machine size and design limits.)

**KD-100-120-EXTVAC\*** KD-100-120, configured for use with External Vacuum. Vacuum unit NOT included. NOTE: CANNOT be used WITHOUT an External Vacuum Cleaner! **Details Below.**

**KD-100-220** Key Tape Disintegrator, for 200-240 VAC 50-60 Hz, 1 Phase, 1.5 Amps **Please don't forget to order extra bags! CAPACITY: 100 segments per bag.** (This capacity was determined by overall machine size and design limits.)

**KD-100-220-EXTVAC\*** KD-100-220, but configured for use with External Vacuum. Vacuum unit NOT included. NOTE: CANNOT be used WITHOUT an External Vacuum Cleaner! **Details Below.**

**KD-100-EXTVAC-R** Factory Retro-Fitting of KD-100-120 or KD-100-220 for use with External Vacuum. NOTE: After this, KD-100 CANNOT be used WITHOUT an External Vacuum Cleaner!

**KD-100-VACUNIT** Commercial "Shop-Vac"-type vacuum. Wired for 120 VAC ONLY. Tested by AML for this application. Includes hose, fittings. Not really special. You can obtain your own locally.

**KD-100-CASE** Hard Shell Padded Transport Case (will NOT FIT "EXTVAC"-type KD-100's!) For "EXTVAC"-TYPE KD-100's, order the KD-100-CASE-EXTVAC. Color: All BLACK. No reflective materials visible. Smooth, serious, high quality finish. Material is heavy web injection-molded ABS. WATERPROOF to 30 feet. Includes folding, comfortable injection-molded HANDLE. Includes pressure-relief VALVE. Very STRONG ribbed construction - will support at least 3,000 lbs. Includes FOAM inserts to nest and lightly cushion the KD-100 DIMENSIONS (Maximum outside): 7 x 12 x

14" WEIGHT (including foam inserts): 4.7 lbs STORAGE SPACE: Space available in the Transit Case for some tools and spare parts. This can be done simply by cutting some pockets or "nests" in the foam inserts.

**\*KD-100-CASE-EXTVAC (WILL FIT EXTVAC"-type KD-100's!)** Transport Case as above, modified with hole, Nozzle Seal, and padding to fit slightly longer **KD-100-120-EXTVAC** OR **KD-100-220-EXTVAC**. **NOT WATERPROOF** (DUE TO EXTRA HOLE). **WATER-RESISTANT ONLY**.

## **NEW! External Vacuum Configuration**

**V1. PURPOSE:** To permit high-volume, sustained operation of the KD-100.

**V2. AVAILABILITY:** Through DOD or directly from AML.

**V3. AML DESIGNATIONS:**

- **KD-100-120-EXTVAC** (KD-100 configured for use with External Vacuum, 120 volts)
- **KD-100-220-EXTVAC** (KD-100 configured for use with External Vacuum, 220 volts)
- **KD-100-EXTVAC-R** (Factory Retro-Fitting for use with External Vacuum. Vacuum Not Included.)
- **KD-100-VACUNIT** (Commercial "Shop-Vac"- type vacuum.)

**V4. Approvals:** This Option does not change the way the machine operates, and therefore does not (according to DOD) require a new approval process.

**V5. Design:** This Option consists of internal modifications to the KD-100, and plastic and rubber components which direct the Residue to the rear panel of the machine. These components include manifolding parts which do two things:

- a) Channel the Residue into the external vacuum cleaner, AND
- b) Provide extra cooling for the KD-100 by pulling air through the KD-100's standard motor.

An external vacuum, such as an ordinary "Shop-Vac", connects to a rubber adapter Nozzle on the rear of the modified KD-100. Additional labelling is attached to the KD-100. Supplements to the Owner's and Service Manuals are included with this Configuration.

### **IMPORTANT NOTES:**

- **This Configuration option is not available for field retro-fit. It is factory-installed only.**
- **Once the KD-100 has been Configured for External Vac, it CANNOT be used without it!**
- **The External Vac itself is NOT included - it's a separate item. You can get or use your own!**
- **This Configuration of KD-100 will NOT fit in the standard Transport Case (# KD-100-CASE).**  
**HOWEVER, WE HAVE ANOTHER CASE (# KD-100-CASE-EXTVAC) that WILL fit!**

**V6. External Vacuum Specs:** We do offer an external vacuum, but there is NO necessity to buy it from us! We did our testing with an ordinary 2HP (peak), 6-gallon capacity, 120 VAC "Shop-Vac" from a local hardware store. We used the standard 1-1/4" hose that came with it to connect to the Nozzle on the modified KD-100.

We expect that an ordinary household vacuum cleaner would also work quite well, but have limited our testing to the "Shop-Vac", because it (or an equivalent) is so readily available, inexpensive, and has considerable suction and capacity.

**V7. Suitable wand or hose connector:** The Nozzle will seal nicely OVER a 1-1/4" nominal OD vacuum tube or "wand". The Nozzle will seal nicely INSIDE a 1-1/2" nominal ID vacuum tube or "wand".

### **V8. Instructions:**

- a) Start with a fresh filter bag and an empty chamber in the external vacuum.
- b) Connect the external vacuum to the rear nozzle on the KD-100.
- c) Switch on the external vacuum FIRST!
- d) Disintegrate Key Tape as required.
- e) Switch off the KD-100 FIRST, and THEN switch off the external vacuum.

**V9. Performance:**

- a) Duty Cycle: Continuous, as long as the external vacuum continues to provide good suction.
- b) Throughput Rate: Approximately 900 segments (10" each) per hour.

**V10. Notes:**

- a) We recommend checking the external vacuum after one hour of operation. Make sure it still has plenty of suction (feel the suction by disconnecting the hose from the KD-100). Make sure that there is plenty of capacity remaining for residue.
- b) You CANNOT use the modified KD-100 WITHOUT an external vacuum! If you do, you will pump residue into the KD-100's motor, and quickly ruin it.
- c) This Option is not field-installable.
- d) KD-100 with this Option installed will NOT fit in the standard Hard-Shell Transport Case (AML Item # KD-100-CASE). HOWEVER, WE HAVE ANOTHER CASE (# KD-100-CASE-EXTVAC) that WILL fit, with these limitations:
  - d1) We cut a round hole in the side of the Case, so that the soft rubber Nozzle protrudes outwards slightly. It adds about 1/4" to the overall width of the case. The Case retains its very high mechanical stiffness and strength.
  - d2) We add a soft seal to the side of the Case, which seals against the protruding Nozzle. It keeps dust, rain, and dirt out of the Case. However, the CASE is NO LONGER WATERTIGHT. It IS, very WATER-RESISTANT, however.
  - d3) We supply a sealing plug to be inserted in the end of the Nozzle when the KD-100 is transported in the case. It keeps dust, rain, and dirt out of the KD-100 itself.
  - d4) If a Transport Case is to be used with the External-Vacuum-style KD-100 (model KD-100-120-EXTVAC or KD-100-220-EXTVAC), please order # KD-100-CASE-EXTVAC so that it will fit!

**WARRANTIES, SERVICE POLICIES****STANDARD (INCLUDED) WARRANTY (Actual Text):**

"This Key Tape Disintegrator is warranted for one calendar year from the date of shipment. We will repair or replace any defective component or defect in materials or workmanship free of charge during the warranty period, subject to the following conditions:

**A.** Customer pays shipping to us; we pay return shipping within the continental USA.

**B.** Warranty EXCLUDES:

- 1) Willful neglect, damage, shipping damage, and physical abuse;
- 2) Damage due to excessive AC line voltage applied;
- 3) The following (consumable, normal wear-and-tear items): Cutter, Cutter Bearings, Bed Blade, Residue Bag, rubber rollers;
- 4) Damage due to failure to replace the Residue Bag. (This can cause overheating and/or destruction of gears due to jamming with residue);
- 5) Introduction of foreign or improper materials into the unit, such as Paper clips, staples, metal objects...anything other than Key Tape;
- 6) Overheat damage due to blocked (cooling) air inlet.

**C.** This Warranty is VOID if in our opinion, the unit has been improperly repaired, adjusted, or altered.

**D.** To the extent permitted by applicable law, Applied Magnetics Laboratory, Inc. limits the duration of any implied warranty of merchantability or fitness for a particular purpose to one year and excludes incidental or consequential damages for breach of any warranty on this product."

**KD-100-EW EXTENDED WARRANTY (OPTIONAL AT EXTRA COST):**

Extends Standard 1-Year Warranty (above) for one additional year. Can only be ordered for a specific KD-100's serial number.

**KD-100-SP 1-YEAR SERVICE POLICY (OPTIONAL, AT EXTRA COST), ACTUAL TEXT:**

"We will repair or replace the KD-100 for any reason: EXCEPT for willful neglect, damage, shipping damage, or physical abuse. INCLUDES Normal wear-and-tear items, such as cutters, blades, rollers.

INCLUDES Extension of the initial 1-year Warranty, if placed in effect after the initial 1-year Warranty. Thus the initial warranty will be extended to remain in effect through the expiration date of the Service Policy.

To expedite return of a unit to service AML may, at its option, exchange an incoming unit for a brand new or factory-refurbished unit. Customer pays shipping to us; we pay return shipping within the continental USA. However, if a customer requests that the returned unit be repaired, rather than exchanged, we will certainly honor that request, provided that the customer is willing to accept a possible delay for repairs to his specific machine."

NOTE: Can only be ordered for a specific KD-100's serial number.

SUPPLIES, KITS, and OPTIONS

**KD-100-BAGPK (NOT NEEDED for "EXTVAC"-type KD-100's!)** 10-pack, Disposable Paper Residue Bag.  
**CAPACITY: 100 segments.** (This capacity was determined by overall machine size and design limits.) Made of filter paper, Specially designed for KD-100.

**KD-100-CUTHSS** High Speed Steel Cutter, With High-Wear Coating. (Replacement Part)

**NEW! Long-Life Cutter!** Available starting February, 2004. We are shipping all new machines with this new Cutter, and supplying it as a replacement or repair part, at SAME COST as Old Cutter.

**Old (gold-colored) Cutter wears out at about 160 minutes.**  
**New (black-colored) Cutter lasts 600 minutes!**

Also includes: 2 precision ball bearings (fitted to the specific Cutter) 1 Bed Blade These items have been added on to the original list, at no extra cost: 1 Coupling Setscrew (must replace whenever removed) 1 Hex ("Allen") key wrench for #6-32 Capstan Gear Screw 1 Hex ("Allen") key wrench for #8-32 Coupling Screws 1 Hex ("Allen") key wrench for 1/4-20 Bearing Screws 1 tube (.02 fl. Oz.) "LocTite" #271 (for Coupling Screws) Does NOT include Service Manual (KD-100-SM )

**KD-100-SM** Complete Service Manual for KD-100. For Major Repairs **NOTE!** Now INCLUDED with Service Kits (no extra charge) Comprehensive instructions, illustrations. 36 full-size (8-1/2 x 11") pages. Recommended if Factory or Depot service might be inconvenient.

**KD-100-SKL** Service Kit - Local. **NOW INCLUDES Service Manual** (Details above). Includes:

- Service Manual (KD-100-SM) -- This Item recently added.
- 1 Replacement Cutter, High Speed Steel, Titanium Nitride Coated
- 2 precision ball bearings (fitted to the specific Cutter)
- 1 Bed Blade
- 1 Pressure Roller (may be one long single or 2 short rollers)
- 10-pack of Residue Bags ("KD-100-BAGPK")
- 1 Drive Shaft/Worm Assembly (For damage due to failure to change bag)
- 2 Spare Fuses

These items have been added on to the original list, at no extra cost:

- 1 Coupling Setscrew (must replace whenever removed)
- 1 Hex ("Allen") key wrench for #6-32 Capstan Gear Screw
- 1 Hex ("Allen") key wrench for #8-32 Coupling Screws
- 1 Hex ("Allen") key wrench for 1/4-20 Bearing Screws
- 1 tube (.02 fl. Oz.) LocTite #271 (for Coupling Screws)

**KD-100-SKD** Service Kit - Depot. **NOW INCLUDES Service Manual.** (Details above). Includes:

- Service Manual (KD-100-SM )
- 10 each, # KD-100-BAGPK (10-packs=100 total)
- 10 Replacement Cutters
- 20 cutter bearings (2 fitted to each Cutter)
- 5 Bed Blades
- 5 Pressure Roller (one long single or 2 short rollers)
- 5 each, Drive Shaft/Worm Assembly (For damage due to failure to change bag)
- 1 Enclosure (main box)
- 5 Each, Small Bevel Gear
- 5 Each, Large Bevel Gear
- 2 each bronze worm gear
- 2 each Residue chute

- 2 each MOTOR/VACUUM Assembly
- 2 Couplings w/ set-screws
- 5 gear cotter pins
- 5 Switches
- 5 fuses (120 V)
- 5 fuses (220 V)
- 2 Power cord (120 V)
- 2 Power cord (220 V)

These items have been added on to the original list, at no extra cost:

- 20 Coupling Setscrews (replace whenever removed)
- 2 Hex ("Allen") key wrench for #6-32 Capstan Gear Screw
- 2 Hex ("Allen") key wrench for #8-32 Coupling Screws
- 2 Hex ("Allen") key wrench for 1/4-20 Bearing Screws
- 1 Vial (.34 fl. Oz.) LocTite #271 (for Coupling Screws)

## SUPPLEMENTAL INFORMATION

### **S1. PRICING and DELIVERY INFORMATION...**

- a) Price includes delivery to any street address in Continental USA, or APO address.
- b) Payment terms: Net 30 days from invoice date.
- This product is NOT currently on GSA schedule. Orders from legitimate COMSEC accounts can be placed directly with D O D, Please contact us via e-mail if you do not know how to do this.

### **S2. INCLUDED with each KD-100:**

- a) Total Accumulated Use Timer (originally this was an option, but no units were sold without it)
- b) User instructions
- c) Padded cardboard shipping box
- d) Standard power cord (120v for USA, 220v for Euro)
- e) One Residue Bag (capacity 100 segments), installed
- f) Delivery to any APO.FPO or physical address within Continental USA
- g) Standard AML 1-year Warranty (see below)

### **S3. SERVICE and REPAIRS:**

- 3a) In general, to be performed by AML in Baltimore, MD.
- 3b) To expedite return of a unit to service AML may, at its option, exchange an incoming unit for a brand new or factory-refurbished unit.

### **S4. TIMER description:**

This is a miniature, all solid-state timer, custom made for the KD-100. The timer runs whenever the KD100 motor runs. No moving parts.

ELAPSED-TIME STORAGE: CMOS EEPROM non-volatile ROM keeps track of the elapsed run time without power, and without the need for a keep-alive battery, for up to 10 years. DISPLAY: 6 digit LCD, reading to 9999.99 minutes maximum (166.6 hours). FORMAT: MMMM:SS DIGITS: 7-segment, 5mm (.2") numeral height TIMEBASE: Quartz crystal. ACCURACY: .01% or better OPERATING TEMP.: -40 to +85 degrees C HUMIDITY: 95% RH @ +32C for 2 hours SHOCK RESISTANCE: SAEJ137853G VIBRATION RESISTANCE: Withstands 10 to 75 Hz @ 1 to 8 G's RESET: Can only be reset by a technician ROLLOVER (Automatic Recycle): Rolls over to 0000.00 if run past 9999.99 POWER REQUIRED: under 0.1 watts

9999 minutes (Rollover Time) works out to about approximately 150,000 segments (at 4 seconds per segment). That's about 24 MILES of tape! By this time, the unit would have had Factory or Depot service, and the Timer would have been reset.

This format and scaling were specified to make good real-world maintenance judgments and record-keeping easy. A readout directly in minutes and hundredths-of-minutes makes checking and evaluating machine performance simple and straightforward.

### **S5. CUTTER LIFE:**

This will vary with conditions, but we recommend New, Long-Life (black-colored) Cutter replacement at about 9500 segments, or 600 minutes on the Timer. Alternatively, the Cutter can be replaced as necessary, "on-condition". Note that the OLD, (gold-colored) Cutter has a rated life of about 2500 segments, or 160 minutes.

Please bear in mind that when the KD-100 reduces a single 10" segment of Key Tape to dust, it makes about 205,000 individual cuts. 9500 segments (600 minutes of cutting time) works out to about 2 BILLION cuts through paper/polyester/paper material, which is quite tough and abrasive. Thus, the 9500-segment, 600-minute Cutter life is a lot longer than it might seem! To assure continued performance, the high-precision Cutter Bearings and certain other parts are replaced with (and included with) each new Cutter.

**S6. ACTUAL FRONT-PANEL INSTRUCTIONS:**

KEY TAPE DISINTEGRATOR Model KD-100

-- SEE OPERATOR'S MANUAL!

- 1. Switch POWER ON (below)
- 2. Insert end of KEY TAPE into SLOT (left side).  
Machine will grab TAPE and pull it in.
- 3. CONFIRM Tape DESTRUCTION through TOP WINDOW.
- 4. Switch OFF IMMEDIATELY when DONE (motor will speed up).  
--Replace BAG every 100 segments or 7 MINUTES  
--Replace CUTTER -- (as follows, depending on installed CUTTER LIFE, as indicated by machine markings and/or labels):
  - every 2500 segments or 160 minutes (original-equipped machines) OR
  - every 9500 segments or 600 MINUTES (Cutters after Feb, 2004) OR
  - every , or 750 MINUTES (about 11,900 segments, increased April, 2004) OR
  - SOONER if output PARTICLES start to ENLARGE

**EXPLANATION...** In case you are wondering, "Switch OFF IMMEDIATELY when DONE" is instructed because the Timer runs whenever the machine is running. The TIMER is used to indicate when the Cutter (and other parts) should be replaced. It functions just like a car's odometer, and there is no point in running up "mileage" when tape is not actually being disintegrated, because it could trigger a Cutter replacement before it is really necessary.