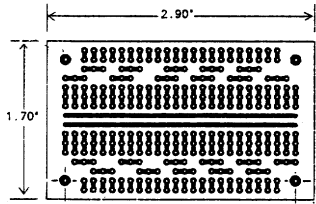


BOARDS, PC



PROTOTYPING BOARDS Copper Plated Phenolic		
PART #	CIRCUIT PATTERN	SIZE (")
12-611 PHI	2 & 3 hole solder pads	1.7 x 2.9
12-617 PHI	5 hole solder pads	1.9 x 5.1
22-508 GC	550 solder tie-points, 94 five-point terminals, & 2 forty-point buses. Phenolic.	2 x 5
12-600 PHI	1900 solder pads: 1,2, or 4 hole	4.3 x 5.5



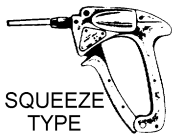
PERFBOARDS, BARE .042" holes on .10" ctrs		
PART #	SIZE (")	MATERIAL
22-514 GC	2.25 x 6	phenolic
22-516 GC	4.5 X 6	phenolic



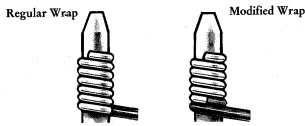
PHONING THE FACTORY

Philmore-Datak www.philmore-datak.com
GC Electronics 800-435-2931
Injectorall 516-563-3388
3M 800-364-3577
www.mmm.com/esm
WireWrap/Cooper 919-362-7541

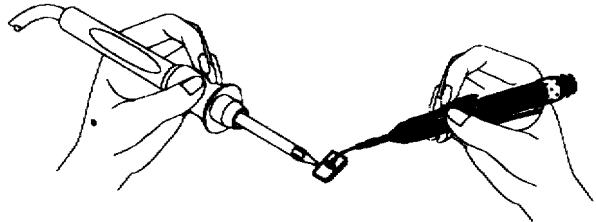
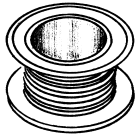
WIRE WRAPPING TOOLS	
"squeeze type"	28000ACI WW —Pistol grip squeeze type manual wire wrap tool designed with a chuck nose piece to make use of the full line of bits and sleeves made for power tools (sold separately; see below). For 22 - 32 awg. 10 turns.
battery powered (2 ni-cad "C" cells)	BW-928BF OK —Battery wrap/unwrap tool with backforce device for standard DIP socket terminals (.025"). Bit & sleeve not included (see row below).
bits & sleeves	Fully compatible with any make or model wire wrapping tool. For 22-24 awg wire, use bit #KB224 & sleeve #P2224 . For 30 awg, use bit #SB30MSH-B & sleeve #P3032 . For 30-32 awg, use bit #KB3032 & sleeve #P3032 . Recommended for .025"sq. terminals on .100 centers.
hand wrap/unwrap pencil tools	12-603 GC — Dual wrap, 22-24 awg, also strips & unwraps, for .045" sq. posts. 12-600 GC — Standard & modified wrap, 30 awg, also strips & unwraps, for .025 posts. A2055731 WW — Standard wrap, 22-24 awg (comes with interchangeable bits, sleeves).



SQUEEZE TYPE



WIRE WRAP WIRE .30 awg •Solid	
COLOR	PART #
BLACK	9978-100' 10 BEL
BLUE	9978-100' 13 BEL
GREEN	9978-100' 5 BEL
RED	9978-100' 2 BEL
WHITE	9978-100' 9 BEL
YELLOW	9978-100' 4 BEL



—SMD COMPONENT LIFTER—
 Portable vacuum pick-up tool with three heads.
LP200 EDSYN

BOARDS, PC

ETCHING ACCESSORIES

BURNISHING TOOL—To rub down dry transfers; has both a 3/4" & a 1" radius for big areas. **4157 DAT**

CONDUCTIVE PAINT, SILVER PRINT—For PC repair or add-on circuit traces. Pure silver in lacquer based carrier may be brushed on to either conduct or shield. Conducts better than copper. **22-201 GC**

CIRCUIT-FIX, PC BOARD—Allows you to cut accurate, burr-free copper foil traces for PCB's for adding to or repairing a PCB. Includes spring-loaded clamp, cutting guide, modeling knife, self adhesive copper trace material, & pure copper self-adhesive donut pads. **CF-1 DAT CF-2 DAT** (copper donuts refill, 308 pcs.) **CF-3 DAT** (copper foil refill, 2 sheets, 3.25" x 10").

DEVELOPER, POSITIVE RESIST—For positive acting resist. Concentrated solution. 1 pint. **D3-P INJ**

DEVELOPER, FILM PROCESS CHEMICAL PACK—3 packets of dry chemicals that are mixed with water to make one pint of high-contrast lithographic film developer and one pint acid fixer. Develops up to 15 sheets of the 5" x 6" POS-NEG film. **ER-6 DAT**

DEVELOPER, NEGATIVE RESIST—Will develop the ER-71 Negative Acting Resist; resist areas not hardened by UV light are dissolved away. 8 oz. can. **ER-8 DAT**

ETCHANT, DRY CONCENTRATE—Just add water. Pkg. will etch approx. 200 sq. inches of copper board. Works with positive or negative systems. 1/4 lb. bag. **ER-3 DAT**

ETCHANT, LIQUID—A quart bottle of ferric chloride to remove copper from boards. Works with positive or negative systems. **PC199Q INJ**

ETCHANT, POWER PUMP—Accelerates etching and frees you from the constant agitating of the etch solution. **ER-12 DAT**

FILM, DRAFTING FOR PC ARTWORK—Translucent polyester carrier film on which drafting symbols can be placed to make original artwork. Accepts pencil or ink. **MS-21 DAT**

FILM, POS-NEG—A reversing film capable of making a negative or a positive from artwork in one step. **ER-5 DAT** (6 ea. 5" x 6") **ER-9 DAT** (2 ea. 8" x 11")

FILTER, POS-NEG YELLOW—Needed for all POS-NEG exposures. Color is equiv. to Kodak Wratten K2 filter. 8.5 x 11". **ER-17 DAT**

FRAME, CONTACT EXPOSURE—To hold films during exposure. Steel. Will hold 8.5 x 11" PCB's. Comes with glass, backboard, yellow POS-NEG filter & instructions. 9 x 12" frame. **ER-10 DAT**

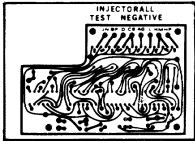
INSTRUCTION MANUAL, PHOTO-ETCH—Detailed instructions for making most PC boards: sensitizing, exposing, developing & etching. Details the POS-NEG process. **ER-16 DAT**

RESIST, DIRECT ETCH PEN—Lacquer ink is impervious to aqueous PC etch solutions. For photo resist pattern touch-up or direct-etched boards w/tight spaces. **ER-15 DAT 22-222 GC**

RESIST, NEGATIVE ACTING LIQUID PHOTO—Spray on coating. When a coated board is exposed to UV light, it is then developed in the ER-8 liquid developer. 4 oz. bottle. **ER-71 DAT**

TIN PLATE, TINNIT—Will plate a copper clad board with a bright tin plate approx. .0004" thick. Supplied as dry concentrate, just add water. 1 pint = 600 sq. inches of plating. Can also plate brass, bronze, iron. **ER-18 DAT**

PHOTO-ETCH KITS	
KIT 850 INJ	Photo-etch kit using boards w/positive resist. Two 3 x 4 pos. sensitized single sized boards, glass, tray, pen, art aids, chemicals, clips, drill bit, exposure lamp and complete instructions.
ER-4 DATAK	Make perfect PC 's photographically from magazine pages (does not harm the page) without camera or darkroom! Kit contains: 5 x 6 steel printing frame w/glass & background, Pos-Neg yellow filter, 4 sheets photocopy film, 1 pint ea. of film developer & fixer, 4 oz. neg. photo resist liquid, 16 oz. resist developer, 5 x 6 & 3 x 4.5 copper clad circuit boards, 1/4 lb. anhydrous ferric chloride, 2 sheets polyester drafting film, 2 rolls PC tape, 8 sheets dry transfer PC patterns, 12 page instruction book.
22-394 GC	Power etching system etches PCB's in just minutes. Makes single & double sided boards up to 8x10 and two at a time. Includes: 1 etching tank & reservoir lid, 1 etch-o-matic agitating power pump, 10' supply hose, tip free base, PCB holder & handle, instruction sheet. Holds 1.25 gallons on etching solution.



POSITIVE ARTWORK

COPPER-CLAD PC BOARDS (not perforated)			
Clad Single or Dual Sided?*	Pre-coated with POSITIVE Acting Resist?	Size (")	Part #
S	No	3 x 4.5	PC9 INJ
S	No	4 x 6	PC10 INJ
S	No	6 x 9	PC11 INJ
D	No	6 x 9	PC53 INJ
S	Yes—positive	3 x 4.5	PC9P INJ
S	Yes—positive	4 x 6	PC10P INJ
S	Yes—positive	6 x 9	PC11P INJ
S	Yes—positive	12 x 18	PC12P INJ

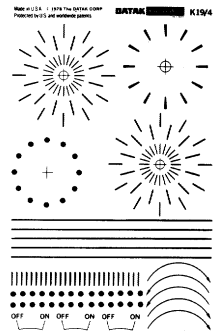
*2 oz. thick copper on a 1/16" thick epoxy glass board
Note: POSITIVE artwork has a white background with back traces on it.

BOARDS, PC

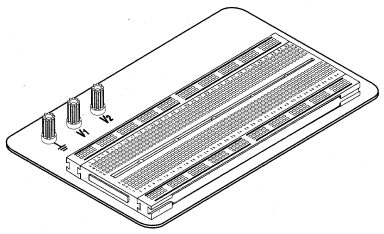


DRY-TRANSFERS	
PART #	DESCRIPTION
04176 DAT (1 oz. liquid) 04177 DAT (12 oz. spray, gloss) 04178 DAT (12 oz spray, matte)	PROTECTIVE COATINGS FOR DRY TRANSFERS-- "Datacoat" is a tough, clear, weatherproof shield for hard surfaces. Will not yellow.
04171 DAT (12 oz. spray, matte)	Same as above, but for absorbent surfaces such as paper or cardboard. More abrasion resistant than "Datacoat" but UV resistance is not a good.
ER-2 DAT	SMALL DIRECT ETCH KIT--8 sheets of what is commonly needed for most small circuits using IC's, resistors, transistors, etc. plus 2 rolls drafting tape.
ER-13 DAT	ASSORTED DONUT PADS--Assorted donut pads of the most needed patterns.
ER-14 DAT	DIP, FLATPACK, SO PADS--A 4 sheet assortment.
K58 DAT	AUDIO, TV & HI-FI--Specify black or white.
K59 DAT	AMATURE RADIO--For all RF & communications. Specify black or white.
K60 DAT	EXPERIMENTER, HOME & INTERCOM--Terms like "attic fan, laundry, reset, adjust." Specify black or white.
K61 DAT	TEST & INDUSTRIAL--For marking scopes, plotters, industrial system panels. Specify black or white.
K62 DAT	MARKS & SWITCHES PATTERNS--Arrows, lines, graduations & rotary switch patterns. Specify black or white.
K63, K64, K65 DAT	ALPHABET & NUMBERS--1/8" letters & numbers (K63 DAT), 1/4" letters & numbers (K64 DAT), 1/2" letters & numbers (K65 DAT).
948 DAT (10 point, black), 949 DAT (10 point, white) 9581 (12point, black) 9591 DAT (12 point, white)	TITLES FOR ELECTRONIC EQUIPMENT--Each set has over 2200 rub-down titles. & labels for electronic panels, etc.
9601 DAT (black letters) 9611 DAT (white letters) 9621 DAT (black numbers) 9631 DAT (white numbers)	ALPHABETS & NUMERAL SETS--12 identical sheets of characters, 12 point .
K19/1 DAT 968 DAT	METER FACE MARKINGS--Black (K19/1 DAT) METER FACE & SWITCH SET--Black (#968 DAT)

MICRON MICROFARADS
 ABCDEFGHIJKLMN
 111122334455556
 ABCDE METER METER mHz
 111122 OPQRSTU VWXYZ
 VIDEO 677889900000:::
 ABCDE OPQRSTU VWXYZ
 111122 677889900000:::
 VOLUME VOR VU
 OPQRSTU VWXYZ
 667788990000:::



DATAK



DATAK

SOLDERLESS PROTOTYPING BREADBOARDS by 3M

PART #	DIP CAPACITY (14 pin)	BASE SIZE (inches)	TOTAL TIE POINTS	# OF BINDING POSTS
922306 3M	6	5.4 x 4	610	2
922309 3M	9	7 x 4	840	3
922318 3M	18	7.75 x 6.25	1824	3
922327 3M	27	8 x 9.25	2712	4
922354 3M	54	14.69 x 9.75	5424	4

JUMPER WIRE ASSORTMENT KIT--350pieces, 25 ea. of 14 lengths, tin plated, solid 22 AWG, color coded PVC insulation. # 923351-R 3M

JUMPER WIRE PACKAGES--Pre-measured, pre-formed, pre-dressed, ready to use.

3M SOLDERLESS BREADBOARD (no base or binding posts)

3M PART #	# TIE POINTS	14 PIN DIP CAPACITY
923252-R AP "Super-Strip"	840	9
923753-R AP "Circuit Strip"	640	6
923261--R AP terminal strip	640 (2 rows of 64)	n/a
923269-R AP terminal strip	340 (2 rows of 34)	n/a
923273-R AP terminal strip	170 (2 rows of 17)	n/a
923289-R AP terminal strip	512 (2 rows of 64)	n/a



JUMPER WIRES by 3M

PART #	LENGTH (inches)	QTY/ PKG	COLOR
923345-01-C-R	0.1	200	no insul.
923345-02-C-R	0.2	200	red
923345-03-C-R	0.3	200	orange
923345-04-C-R	0.4	200	yellow

JUMPER WRE KIT--350 wires (25 each of 14 different lengths from .1" to 5") packaged in convenient, compartmented plastic box. #923351 3M