

**SCHEMATIC DIAGRAM
AND
PARTS LIST**

BK PRECISION

1420

**15 MHz, AC/DC/Battery
Dual-Trace
MINI-SCOPE**

**PARTS LIST
488-258-9-004C**

SCHEMATIC SYMBOL	DESCRIPTION	DYNASCAN PART NO.
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RESISTORS

Unless otherwise specified on schematic, unlisted resistors are $\pm 5\%$, 1/4 W. See schematic diagram for value of unlisted resistors.

R2, 27, 107, 108, 109	5 k Ω , 20% Trimmer Pot	008-231-9-001
R4	1.87 k Ω , 1/4 W, 1% Metal Film.....	015-141-1-871
R5	61.9 k Ω , 1/4 W, 1% Metal Film	015-141-6-192
R6	4.7 Ω , 1/2 W, 1% Wirewound	004-183-9-001
R11	2 k Ω , 20% Trimmer Pot	008-303-9-001
R32	1/4 Ω , 1 W, 1% Wirewound	004-185-9-001
R39	1/2 Ω , 1 W, 1% Wirewound	004-184-9-001
R40/R53	50 k Ω /1 k Ω , Dual Concentric Potenti- ometer (ASTIG/TRACE ROTATION)...	008-432-9-001
R45	5 M Ω , 1/4 W, 20% Potentiometer	008-392-9-001
R48, 69	50 k Ω , 20% Trimmer Pot	008-387-9-001
R51	10 k Ω , 1/4 W, 20% Potentiometer, Includes S1	008-400-9-001
R104, 110	4.99 k Ω , 1/4 W, 1% Metal Film.....	015-141-4-991
R105	10.0 k Ω , 1/4 W, 1% Metal Film.....	015-141-1-002
R106	24.9 k Ω , 1/4 W, 1% Metal Film.....	015-141-2-492
R111	61.29 k Ω , 1/4 W, 1/4% Metal Film	011-182-9-001
R112	6.81 k Ω , 1/4 W, 1/4% Metal Film	011-181-9-001

**COMPOSITE
499-189-9-001C**

SCHEMATIC SYMBOL	DESCRIPTION	DYNASCAN PART NO.
R115	10 k Ω , 1/4 W, 20% Potentiometer, Includes S106	008-402-9-001
R124	10 k Ω , 1/4 W, 20% Potentiometer, Includes S102	008-395-9-001
R136	250 Ω , 20% Trimmer Pot	008-229-9-001
R139, 235, 237	100 Ω , 20% Trimmer Pot	008-343-9-001
R152, 153	2.43 k Ω , 1/4 W, 1% Metal Film.....	015-141-2-431
R160, 161	4.75 k Ω , 1/4 W, 1% Metal Film.....	015-141-4-751
R163	1 k Ω , 20% Trimmer Pot	008-247-9-001
R201, 202	2.4 k Ω , 2 W, 5%, Glass.....	003-002-5-242
R218, 219	500 Ω , 20% Trimmer Pot	008-314-9-001
R220, 223	10 k Ω , 1/4 W, 20% Potentiometer, Includes S205 or S206	008-391-9-001
R227, 231	499 Ω , 1/4 W, 1% Metal Film.....	015-141-4-990
R228, 232	301 Ω , 1/4 W, 1% Metal Film.....	015-141-3-010
R229, 233	200 Ω 1/4 W, 1% Metal Film	015-141-2-000
R248, 251	111 k Ω , 1/4 W, 1% Metal Film	011-201-9-001
R249, 252	10.1 k Ω , 1/4 W, 1% Metal Film.....	011-183-9-001
R250, 253	1.00 k Ω , 1/4 W, 1% Metal Film.....	015-141-1-001
R254, 257	900 k Ω , 1/4 W, 1% Metal Film	011-202-9-001
R255, 258	990 k Ω , 1/4 W, 1% Metal Film	011-186-9-001
R256, 259	999 k Ω , 1/4 W, 1% Metal Film	011-203-9-001

CAPACITORS

C1	3300 μ F, 25 V, +50,-10% Electrolytic	022-207-9-001
C2, 114	150 pF, 500 V, 10% Ceramic Disc	020-031-9-001
C3, 13, 14, 15	330 μ F, 25 V, 20% Low ESR Electrolytic.....	022-208-9-001
C4, 110, 117	1 μ F, 50 V, 20%, Low Leakage Electrolytic.....	036-001-9-005
C5	10 μ F, 25 V, 20% Tantalum	027-014-9-001
C6	.0047 μ F, 400 V, 5% Polyester.....	025-152-9-001
C7, 120	.47 μ F, 35 V, 20% Tantalum	027-006-9-001
C8, 9, 35, 215, 216	.001 μ F, 500 V, 10% Ceramic Disc	020-016-9-001
C10	470 pF, 500 V, 10% Ceramic Disc	020-029-9-001
C11, 104	.0033 μ F, 100 V, 5% Polyester.....	025-147-9-001
C12, 222, 240	100 pF, 500 V, 10% Ceramic Disc	020-044-9-001
C16, 18	2.2 μ F, 20 V, 20% Tantalum	027-017-9-001
C17, 223, 227 228, 229	10 μ F, 25 V, +80,-10% Electrolytic.....	022-121-9-001
C20	.005 μ F, 500 V, 20 %, Ceramic Disc.....	020-018-9-001
C21	.047 μ F, 630 V, 20% Polyester.....	025-018-9-001
C22, 23	.03 μ F, 1000 V, +80,-20% Ceramic Disc..	020-093-9-001

SCHEMATIC SYMBOL	DESCRIPTION	DYNASCAN PART NO.
C25	4.7 μ F, 63 V, 20% Low ESR Electrolytic	022-215-9-001
C26	33 μ F, 100 V, 20% Low ESR Electrolytic	022-209-9-001
C27	33 μ F, 160 V, 20% Low ESR Electrolytic	021-068-9-001
C28, 34, 112, 121-126, 128, 217-220, 225, 233	.01 μ F, 100 V, +80,-20% Ceramic Disc ...	020-101-9-001
C29	.22 μ F, 35 V, 20% Tantalum	027-004-9-001
C30, 31	20 pF, 2000 V, 20% Ceramic Disc	020-311-9-001
C32	.01 μ F, 2000 V, +80,-20% Ceramic Disc..	020-247-9-001
C101	.1 μ F, 250 V, 20% Polyester	025-013-9-001
C102, 103, 107, 108	4.7 μ F, 25 V, 20% PC Low Leakage Electrolytic	022-112-9-001
C105	.33 μ F, 35 V, 20% Tantalum	027-043-9-001
C106	33 μ F, 6 V, 10% Tantalum	027-045-9-001
C109	.0033 μ F, 100 V, 20% Polyester	025-105-9-001
C113	.01 μ F, 500 V, 20% Ceramic Disc	020-008-9-001
C115	.1 μ F, 100 V, 20% Polyester	025-109-9-001
C116	.1 μ F, 100 V, 5% Polyester	025-075-9-001
C118	470 pF, 500 V, 10% Ceramic Disc	020-071-9-001
C119	.005 μ F, 500 V, 20% Ceramic Disc	020-064-9-001
C129	.1 μ F, 25 V, +80,-20% Ceramic Disc	020-110-9-001
C130	20 pF, 500 V, 10% NPO Ceramic Disc ...	031-010-9-001
C201, 202	.22 μ F, 250 V, 20% Polyester	025-113-9-001
C203, 205, 207, 209, 211, 213, 234-239	3-8 pF Ceramic Trimmer	028-062-9-001
C204, 210	68 pF, 500 V, 5% Silver Mica	023-066-9-001
C206, 212	680 pF, 50 V, 5% Monolythic Ceramic...	020-290-9-001
208, 214	.01 μ F, 63 V, 5%, Polypropylene Film	033-056-9-001
C221, 226	30 pF, 500 V, 5% Ceramic Disc	020-135-9-001
C224	47 pF, 100 V, NP0, Ceramic Disc	031-044-9-001
C231, 232	10-40 pF Ceramic Trimmer	028-064-9-001

TRANSFORMERS

T1	Transformer, Switching	064-026-9-001
	BE-20 AC Adapter (120 V, 60 Hz Primary).....	534-220-0-000
	BE-21 AC Adapter (220 V, 50/60 Hz Primary)	534-221-0-000

SCHEMATIC SYMBOL	DESCRIPTION	DYNASCAN PART NO.
COILS		
L1	Inductor, Power	042-037-9-001
L2	Coil, TRACE ROTATION	See Note, Page 7
L201, 202	Coil, Variable.....	044-057-9-001
SWITCHES		
S101	Rotary Switch (SWEEP TIME/DIV), Includes R102	083-263-9-001
S103, 104	Slide Switch, DPDT	084-084-9-001
S105	Slide Switch, APDT	084-090-9-001
S201, 202	Slide Switch, DP3T.....	084-085-9-001
S203, 204	Rotary Switch (VOLTS/DIV), Includes R226 or R230	083-264-9-001
TRANSISTORS		
Q1	MJE3055 Silicon Transistor	172-055-9-001
Q2, 103	MPS2369 Silicon Transistor	176-049-9-001
Q3	D40D1 Silicon Transistor.....	172-005-9-001
Q4, 7, 8	MJE210 Silicon Transistor	173-009-9-001
Q5, 6	N-channel VMOS Power FET.....	182-060-9-001
Q9	High Voltage Silicon Transistor	172-056-9-001
Q10, 11, 107, 108	2N5550 Silicon Transistor	176-033-9-001
Q12, 102, 104	2N5087 Silicon Transistor	177-034-9-001
Q13, 110, 206, 207, 210-213	MPS6515 Silicon Transistor	176-050-9-001
Q101, 105	2N5210 Silicon Transistor	176-083-9-001
Q106, 111, 208, 209	2N3904 Silicon Transistor	176-084-9-001
Q109, 214	MPS6519 Silicon Transistor	177-015-9-001
Q201, 202	Dual FET	182-024-9-001
Q204, 205	D40N1 Silicon Transistor.....	172-020-9-001
DIODES		
D1-5, 20, 22, 24	1A, 600 V Silicon	151-050-9-001
D6	Red LED.....	158-004-9-001
D7, 8, 10, 12, 23, 28, 29, 101-104 203-211	1N4148 Silicon.....	151-038-9-001
D9, 11	1A, 50 V Fast Switching Silicon.....	151-089-9-001
D13-15	0.5 A, 1.5 kV Fast Switching Silicon	151-090-9-001

SCHEMATIC SYMBOL	DESCRIPTION	DYNASCAN PART NO.
D16-18	1A, 200 V Fast Switching Silicon	151-091-9-001
D19	1N4759A (62 V, 1 W, 5%) Zener.....	152-117-9-001
D21	1N4733A (5.1 V, 1 W, 5%) Zener	152-030-9-001
D25, 26	1N4734A (5.6 V, 1 W, 5%) Zener	152-036-9-001
D27	1N4745A (16 V, 1 W, 5%) Zener.....	152-009-9-001
D105, 201, 202	Low Leakage Silicon	151-055-9-001

INTEGRATED CIRCUITS

IC1	723C	307-009-9-001
IC2	78L05	307-129-9-001
IC3	4047B	308-187-9-001
IC4, 107	555 Timer.....	307-065-9-001
IC5	324	307-060-9-001
IC6, 204	4001.....	308-072-9-001
IC8	7805.....	307-080 9-001
IC9	79M05.....	307-186-9-001
IC10	78L15	307-130-9-001
IC11, 103, 108	74LS00	307-100-9-001
IC101	358	307-134-9-001
IC102	75107	307-127-9-001
IC104, 203	74LS74	307-119-9-001
IC105	96LS02.....	307-156-9-001
IC106	CA3086	307-087-9-001
IC201, 202	733	307-189-9-001

MISCELLANEOUS

F1, 2	Fuse, 7AG, 2A, 32 V.....	191-320-7-002
CRT-1	Cathode Ray Tube.....	See Note, Page 7
	CRT Socket.....	749-100-9-001
	CRT Shield	256-135-9-001
	Clamp, CRT	741-133-9-001
	Screw For CRT Clamp	707-824-1-117
	Sponge Pad (CRT neck)	388-049-9-001
	Graticule, CRT.....	See Note, Page 7
	Viewing Hood	380-387-9-001
	Case, Bottom	252-034-9-001
	Case, Top	253-108-9-001
	Front Bracket (sub-panel)	251-523-9-001
	Inlay, Main (front panel)	260-322-9-001
	Inlay, Logo & Model No. (front panel) ...	600-072-9-001
	Front Bezel, Black Plastic	380-412-9-001
	Support Bracket (Power Supply PCB)	380-415-9-001
	Heat Sink (For Q4, 7, 8)	747-083-9-001
	Bracket Assembly, Battery Tray & CRT Mount	523-329-9-001

**SCHEMATIC
SYMBOL**
DESCRIPTION
**DYNASCAN
PART NO.**

Rear Overlay/Nameplate	600-073-9-001
Shield, Vertical Input (2 Req'd)	256-134-9-001
Shield, Vertical Inputs.....	256-140-9-001
Foot, Rear	380-120-9-001
Foot, Bottom	380-136-9-001
Handle Assembly	539-114-0-000
Includes:	
Detent Hub	746-062-9-001
Screw (For Hub)	628-509-1-917
Springs For Handle	767-118-9-001
Screw, Handle Mounting	706-916-1-901
Flat Washer, Handle Mounting.....	725-040-3-210
Felt Pad (Battery Pack), 2 Req'd	351-015-9-001
Spacer, Battery Mounting.....	759-106-9-001
Screw, Battery Mounting.....	628-027-1-101
Vinyl Cap (Battery Pack Screw Covers)	384-036-9-001
BNC Jack.....	772-024-9-001
Mounting Nut, For BNC Jack	691-216-1-306
Lock Washer Lug, For EXT TRIG Jack ..	740-014-9-001
Banana Jack, Black (GND Jack)	773-015-9-802
Mounting Nut, For GND Jack.....	653-049-9-001
3.5 mm Phone Jack (AC Input).....	773-104-9-001
Flat Washer, Phone Jack.....	347-088-9-001
Shoulder Washer, Phone Jack	347-089-9-001
DC Power Jack.....	775-054-9-001
Screw for DC Power Jack (2 Req'd)	634-134-9-001
Feed-Thru Jack (CAL Terminal).....	777-005-9-001
Knob, Small (VARIABLE, FOCUS, etc.)	751-202-9-001
Knob, Large (VOLTS/DIV, SWEEP TIME/DIV)	751-230-9-001
Knob, Concentric (ASTIG/TRACE ROTATION)	751-228-9-001
Instruction Manual	480-297-9-001

NOTE: We use two suppliers for the CRT. One version uses a dome faced CRT and the other uses a flat face CRT. The flat face CRT includes an integral trace rotation coil.

Units with the flat face CRT use the following replacement parts:

CRT, Flat Face With Coil..... 523-646-9-001
Window, CRT (Graticule) 380-503-9-902

Units with the dome face CRT use the following replacement parts:

CRT, Dome Face 230-019-9-001
Coil, Trace Rotation 040-003-9-001
Window, CRT (Graticule) 380-380-9-001

U.S.A. PARTS ORDERING INFORMATION

There is a minimum charge for each invoice. Orders will be shipped C.O.D. unless previous open account arrangements have been made or remittance accompanies order. Advance remittance must cover handling, postage or express charges. Specify model and serial number when ordering replacement parts.

ORDER REPLACEMENT PARTS FROM:

B & K-Precision, Dynascan Corporation
Factory Service Operations
4050 North Ravenswood Avenue
Chicago, Illinois 60613
Telephone: (312) 327-7270
Telex: 25-3475

ACCESSORIES SUPPLIED WITH MODEL 1420 MINI-SCOPE

Two 10:1 Probes with Accessory Tips
Viewing Hood
120 VAC, 60 Hz AC Adapter
or
220 VAC, 50/60 Hz AC Adapter
Instruction Manual
Schematic Diagram & Parts List

BK PRECISION DYNASCAN
CORPORATION

6460 West Cortland Street
Chicago, Illinois 60635