

# SERVICING INFORMATION



**MODEL 3011A  
3011B**

## FUNCTION GENERATOR

### PARTS LIST

SCHEMATIC SYMBOL	DESCRIPTION	B+K PRECISION PART NUMBER
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#### RESISTORS

Unlisted resistors are  $\pm 5\%$ , 1/4 W. See Schematic for value.

R101, 102	10 k $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-1-002
R104	820 $\Omega$ $\pm$ 5%, 1/2 W, Carbon .....	002-102-5-821
R105	1.8 k $\Omega$ $\pm$ 5%, 1/2 W, Carbon .....	002-102-5-182
R205	2.61 k $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-2-611
R206	2.21 k $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-2-211
R207	4.99 k $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-4-991
R208	2.49 k $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-2-491
R209	4.99 k $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-4-991
R210	3.65 k $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-3-651
R210A	100 $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-1-000
R211	7.32 k $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-7-321
R211A	174 $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-1-740
R212	37.4 k $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-3-742
R213	75 k $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-7-502
R214	374 k $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-3-743
R215	750 k $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-7-503
R301	14.3 k $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-1-432
R302	1 k $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-1-001
R303	14.3 k $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-1-432
R304	1 k $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-1-001
R306-307	221 $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-2-210
R308	1.74 k $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-1-741
R401, 402	10 $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-1-008
R403	1.91 k $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-1-911
R404	340 $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-3-400
R405-407	1 k $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-1-001
R408	750 $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-7-500
R409	270 $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	013-010-9-014
R410	100 $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-1-003
R411	511 $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-5-110
R412	1 k $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-1-001
R413	1.21 k $\Omega$ $\pm$ 1%, 1/4 W, Metal Film .....	015-144-1-211
R512, 513	2 k $\Omega$ $\pm$ 5%, 1/2 W, Carbon .....	002-102-5-202
R514, 515	47 $\Omega$ $\pm$ 5%, 2 W, Carbon .....	002-002-5-470
R518, 519	96.2 $\Omega$ $\pm$ 1%, 1/2 W, Metal Film .....	013-174-9-004

COMPOSITE 499-394-9-001D

**SCHEMATIC  
SYMBOL**

**DESCRIPTION**

**B+K PRECISION  
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**RESISTORS (Continued)**

R520	475 $\Omega \pm 1\%$ , 1/2 W, Metal Film .....	015-124-4-750
R521	52.5 $\Omega \pm 1\%$ , 1/2 W, Metal Film .....	013-174-9-003
VR201	4.7 k $\Omega$ Trimmer Potentiometer .....	010-026-9-003
VR202	5 k $\Omega$ Potentiometer (FREQ Control, 3011A) .....	008-845-9-001
VR202	5 k $\Omega$ Potentiometer (COARSE Control, 3011B) .....	008-908-9-001
VR203	470 $\Omega$ Trimmer Potentiometer .....	010-026-9-006
VR204/S301	50 k $\Omega$ Potentiometer w/Switch (DUTY/INV) .....	008-845-9-003
VR205	Dual 500 $\Omega$ Potentiometer (FINE control)(3011B only) .	008-908-9-002
VR301	1 k $\Omega$ Trimmer Potentiometer .....	010-026-9-002
VR302/S302	1 k $\Omega$ Potentiometer w/Switch (TTL/CMOS Control) ...	008-845-9-002
VR303	220 $\Omega$ Trimmer Potentiometer .....	010-026-9-001
VR401	100 $\Omega$ Trimmer Potentiometer .....	010-025-9-001
VR402	1 k $\Omega$ Trimmer Potentiometer .....	010-026-9-002
VR403	100 k $\Omega$ Trimmer Potentiometer .....	010-026-9-005
VR404	1 k $\Omega$ Trimmer Potentionmeter .....	101-026-9-002
VR501	10 k $\Omega$ Trimmer Potentionmeter .....	010-026-9-004
VR502/S503	1 k $\Omega$ Potentiometer w/Switch (AMPLitude Control) . . .	008-845-9-002
VR503/S502	50 k $\Omega$ Potentiometer w/Switch (OFFSET Control) .....	008-845-9-003

**CAPACITORS**

C101-102	1000 $\mu$ F, 35 V, Electrolytic .....	022-335-9-004
C103-105	47 $\mu$ F, 25 V, Electrolytic .....	022-328-9-001
C106	10 $\mu$ F, 25 V, Electrolytic .....	022-335-9-003
C107	47 $\mu$ F, 25 V, Electrolytic .....	022-328-9-001
C108	4700 $\mu$ F, 16 V, Electrolytic .....	022-335-9-001
C109	100 $\mu$ F, 16 V, Electrolytic .....	022-335-9-002
C110	0.1 $\mu$ F, 12 V, Disc .....	020-385-9-001
C201, 202	0.047 $\mu$ F, 25 V, Disc .....	020-385-9-003
C203	90 pF $\pm 5\%$ , 50 V, NPO Disc. ....	031-069-9-004
C204	0.001 $\mu$ F $\pm 1\%$ , 100 V, Metalized Polyester .....	025-250-9-001
C205	0.01 $\mu$ F $\pm 1\%$ , 100 V, Metalized Polyester .....	025-250-9-002
C206	0.1 $\mu$ F $\pm 1\%$ , 100 V, Metalized Polyester .....	025-250-9-003
C207	1.0 $\mu$ F $\pm 1\%$ , 100 V, Metalized Polyester .....	025-250-9-004
C208, 209	0.01 $\mu$ F, 12 V, Disc .....	020-385-9-002
C301	10 $\mu$ F, 25 V, Electrolytic .....	022-335-9-003
C302	10 pF $\pm 1/2$ pF 50 V, NPO Disc. ....	031-068-9-002
C303, 304	10 $\mu$ F, 25 V, Electrolytic .....	022-335-9-003
C305	0.1 $\mu$ F, 12 V, Disc .....	020-385-9-001
C306	0.047 $\mu$ F, 25 V, Disc .....	020-385-9-003
C309, 310	0.1 $\mu$ F, 12 V, Disc .....	020-385-9-001
C401, 402	0.047 $\mu$ F, 25 V, Disc .....	020-385-9-003
C501	2 pF $\pm 1/2$ pF 50 V, NPO Disc. ....	031-068-9-001
C502, 503	22 $\mu$ F, 50 V, Electrolytic .....	022-335-9-005
C504	300 pF $\pm 5\%$ , 50 V, Disc. ....	020-386-9-001
C505, 506	0.047 $\mu$ F, 25 V, Disc .....	020-385-9-003
C601, 602	22 pF $\pm 5\%$ , 50 V, NPO Disc. ....	031-068-9-003
C603 - 605	0.1 $\mu$ F, 12 V, Disc .....	020-385-9-001
VC201, 501	5-16 pF Variable Capacitor .....	028-093-9-001

**SCHEMATIC  
SYMBOL**

**DESCRIPTION**

**B+K PRECISION  
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**TRANSISTORS & DIODES**

Q101, 102	TIP32C PNP Silicon Transistor .....	172-080-9-001
Q201	2N5485 N-Channel Field-Effect Transistor .....	182-067-9-001
Q202	2SA1015G R PNP Silicon Transistor .....	177-057-9-001
Q203	2SC1815G R NPN Silicon Transistor .....	176-095-9-001
Q204, 205	2N5485 N-Channel Field-Effect Transistor .....	182-067-9-001
Q206-209	2SC1815G R NPN Silicon Transistor .....	176-095-9-001
Q301	2SC1815G R NPN Silicon Transistor .....	176-095-9-001
Q501, 502	2SC1815G R NPN Silicon Transistor .....	176-095-9-001
Q503	2SC1015G R PNP Silicon Transistor .....	177-057-9-001
Q504, 505	2SC1518G R NPN Silicon Transistor .....	176-095-9-001
Q506	2N2219A NPN Silicon Transistor .....	172-014-9-001
Q507	2N2905A PNP Silicon Transistor .....	173-005-9-001
Q601-607	2SC1815G R NPN Silicon Transistor .....	176-095-9-001
D101	1 A, 600 V, Silicon Diode .....	151-050-9-001
D102	5.6 V. $\pm$ 5%, 1/2 W, Zener Diode .....	152-072-9-001
BD101, 102	Bridge Rectifier Assembly 1A .....	157-038-9-001
D201, 202	1N4148 Silicon Diode .....	151-038-9-001
D501, 502	1N4148 Silicon Diode .....	151-038-9-001
D601-614	1N4148 Silicon Diode .....	151-038-9-001
D615	LED (Red) .....	158-114-9-001
D622, 6123	LED (Red) .....	158-114-9-001
DS601-604	7-Segment LED Display (4 required) .....	283-063-9-001

**INTEGRATED CIRCUITS**

U101	7815 .....	307-081-9-001
U102	741CP .....	307-016-9-001
U103, 104	7805M .....	307-080-9-001
U201	741CP .....	307-016-9-001
U203-205	741CP .....	307-016-9-001
U301	75107N .....	307-127-9-001
U302	74504 .....	307-208-9-001
U303	4081BN .....	308-117-9-001
U401	CA3086 (CA3046) .....	307-087-9-001
U601	MM5369 .....	308-370-9-002
U602	74LS92AN .....	307-422-9-001
U603	4518BE .....	308-146-9-001
U604	4011BE .....	308-114-9-001
U605	14023BCP .....	308-370-9-001
U606	4011BE .....	308-114-9-001
U607	4017BCN .....	308-116-9-001
U608	74C926N .....	308-370-9-003
U609	4518BE .....	308-146-9-001
TS-101	Power Transformer (100, 120, 220, 240 V) .....	065-259-9-002
S101/S201	8-Station Pushbutton Switch Assembly (Power/Range) ..	088-206-9-007
S501	3-Station Pushbutton Switch Assembly (Function) .....	088-206-9-002

**MISCELLANEOUS**

F101	Fuse, 1/2 A, 250 V, 5 x 20 mm (100/120 V operation) ...	198-300-0-500
	0.3 A, 250 V, 5 x 20 mm (220/240 V operation)	
F501	Fuse, 200 mA, 250 V, Slow Blow Axial Lead Type .....	199-300-0-200
X601	3.58 MHz Crystal .....	132-041-9-001
	Bracket, Transformer Mounting .....	250-208-9-001

## MISCELLANEOUS (Continued)

PC Fuse Clip (2 Required) (5 x 20 mm) . . . . .	741-209-9-001
Power Receptacle . . . . .	770-031-9-001
AC Line Cord . . . . .	420-039-9-001
Handle Inlay (2 required) . . . . .	746-092-9-001
BNC Connector, Female . . . . .	772-024-9-001
Front Panel (3011A) . . . . .	255-275-9-001
Front Panel (3011B) . . . . .	255-277-9-001
Bottom Case . . . . .	271-483-9-001
Top Case . . . . .	271-482-9-001
Handle . . . . .	746-091-9-001
Rubber Foot . . . . .	381-188-9-001
Bottom Screw, 3 x 60 mm . . . . .	634-256-9-001
Knob (FREQ, 3011A) (FREQ COARSE, 3011B) . . . . .	751-368-9-001
Knob (DUTY, AMPLitude, etc.) . . . . .	751-314-9-002
Switch Button, Black . . . . .	384-144-9-001
Switch Button, Gray . . . . .	384-144-9-003
Switch Button, Red . . . . .	384-144-9-002
BNC-to-Insulated Clips Test Cable . . . . .	534-241-0-000
Instruction Manual (3011A) . . . . .	480-639-9-001
Instruction Manual (3011B) . . . . .	480-653-9-001

## 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, Factory Service Operations  
Maxtec International Corporation  
6470 West Cortland Street  
Chicago, Illinois 60635  
Tel (312) 889-1448



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## PRODUCTION CHANGES

This schematic diagram and parts list reflects Model 3011B, Serial No. 147-27253 and higher. For Model 3011A and 3011B with lower serial number, some or all of the following circuit differences may be noted. In many cases, replacement parts are not interchangeable. Replace with the original type part.

F501	not in earlier units.	
R516, 517	was $10\Omega \pm 5\%$ , 1/4 W	
R518, 519	was $100\Omega \pm 1\%$ , 1/2 W, Metal Film . . . . .	015-124-1-000
R520	was $499\Omega \pm 1\%$ , 1/2 W, Metal Film . . . . .	015-124-4-990
R521	was $56.2\Omega \pm 1\%$ , 1/2 W, Metal Film . . . . .	015-124-5-628
F101	was 3AG Type, 0.5A, 250 V, Normal Blow. . . . .	191-251-3-102
Fuse Clip	was 3AG Type . . . . .	741-184-9-001
TS101	was 120/220/240 V . . . . .	065-214-9-001
S201	was . . . . .	088-194-9-001
S501	was . . . . .	088-151-9-002
Black Pushbutton	was . . . . .	384-135-9-001
Gray Pushbutton	was . . . . .	384-115-9-002
Red Pushbutton	was . . . . .	384-079-9-003
DS601-604	were . . . . .	238-034-9-001

## SCHEMATIC DIAGRAMS





