

Celltac α

Automated Hematology Analyzer

MEK-6400/MEK-6410
MEK-6420/MEK-6450

MEK-6400C MEK-6410C MEK-6420C MEK-6450J
MEK-6400J MEK-6410J MEK-6420J MEK-6450K
MEK-6400K MEK-6410K MEK-6420K

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After signing this non-disclosure agreement or equivalent, you can use the technical reference manual.

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THIS AGREEMENT between _____ (COMPANY) and Nihon Kohden Corporation (NK), effective from the date stated below by COMPANY, shall govern the conditions of disclosure of the Technical Reference Manual and other confidential technical information given to COMPANY by NK relating to Nihon Kohden hematology analyzer _____ (collectively "Confidential Information").

COMPANY hereby agrees not to disclose Confidential Information to any other party or copy the Confidential Information without the express written consent of NK. Upon request of NK, COMPANY shall immediately return the Technical Reference Manual, including all copies, to NK.

THIS AGREEMENT shall not apply to the following information.

- (a) Publicly known before or after disclosure by NK through no fault of COMPANY.
- (b) In the possession of COMPANY before disclosure by NK.
- (c) Acquired by COMPANY from a third party having an independent right to disclose the information.

If COMPANY causes damage to NK against THIS AGREEMENT, COMPANY shall make compensation for the damage.

When any discrepancy occurs in the interpretation of THIS AGREEMENT or when any discrepancy occurs between COMPANY and NK in regard to matters not stipulated in THIS AGREEMENT, COMPANY and NK shall discuss the discrepancy amicably in order to reach a solution in good faith.

Two copies of THIS AGREEMENT shall be made and signed by COMPANY and NK. COMPANY and NK shall each have one copy of THIS AGREEMENT.

COMPANY

Date: _____

Company: _____

Address: _____

NK

Date: _____

Nihon Kohden Corporation

1-31-4, Nishiochiai, Shinjuku-ku, Tokyo

Signature: _____

Signee's name in block letters:

Signature: _____

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Section 1 Replaceable Parts List

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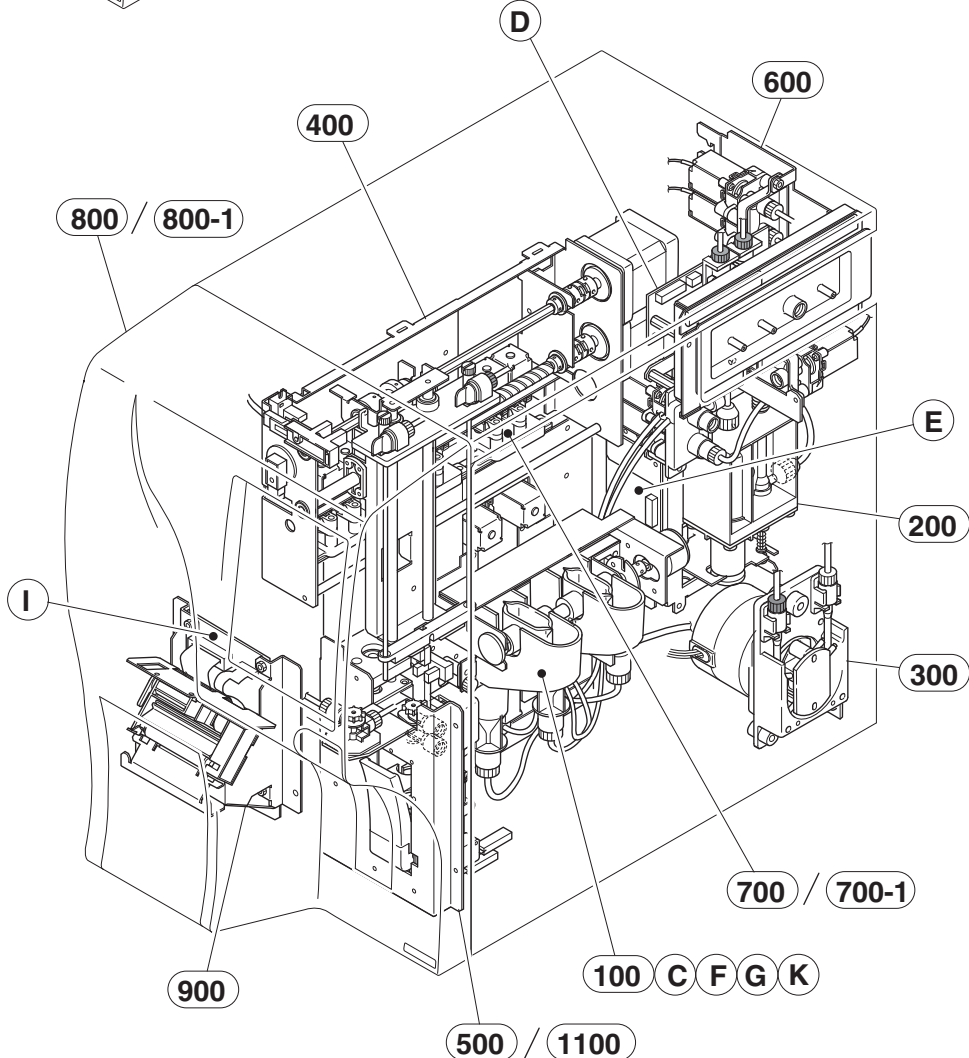
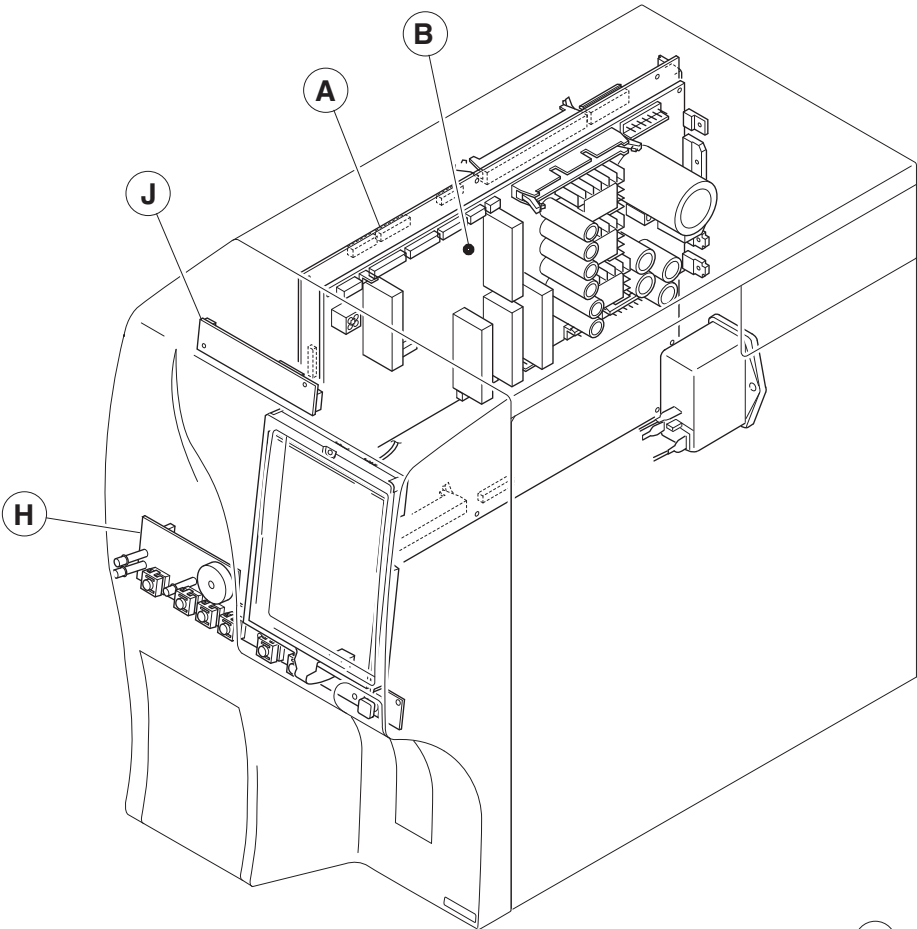
1. REPLACEABLE PARTS LIST

When ordering parts or accessories from your nearest Nihon Kohden Corporation distributor, please quote the NK code number and part name which are listed in this service manual, and the name or model of the unit in which the required part is located. This will help us to promptly attend to your needs. Always use Nihon Kohden parts and accessories to assure maximum performance from your instrument.

Units and Boards

Rank	Index	NK Code No.	Qty	Description
C	100	MC-640V	1	Measuring unit
C	200	MD-640V	1	Combination syringe pump unit
C	300	MP-640V	1	Pump unit
C	400	MS-640V	1	Sampler unit
C	500	MS-641V	1	Cap pierce unit
C	600	JQ-640V	1	Inlet/outlet unit
C	700	JQ-641V	1	Valve unit (for MEK-6400C/J/K)
C	700-1	JQ-642V	1	Valve unit (for MEK-6410C/J/K, 6420C/J/K, 6450J/K)
C	800	PV-640VK	1	Front panel unit (for MEK-6400C/J/K)
C	800-1	PV-641VK	1	Front panel unit (for MEK-6410C/J/K, 6420C/J/K, 6450J/K)
C	900	WA-640VK	1	Printer unit
C	1100	MR-640V	1	Rinse unit (for MEK-6410C/J/K, 6420C/J/K, 6450J/K)
C	A	UT-7192	1	AMP CONTROL board (for MEK-6400C/J/K)
C	A	UT-71921	1	AMP CONTROL board (for MEK-6410C/J/K)
C	A	UT-71922	1	AMP CONTROL board (for MEK-6420J/K)
C	A	UT-71923	1	AMP CONTROL board (for MEK-6420C)
C	A	UT-71924	1	AMP CONTROL board (for MEK-6450C/J/K)
C	B	UT-7193	1	POWER board
D	C	UT-7198	1	MEASURING board
C	D	UT-7199	1	LIQUID SENSOR board
C	E	UT-7200	1	MIXED PUMP board
D	F	UT-7201	1	HGB AMP board
D	G	UT-7202	1	HGB LED board
C	H	UT-7203	1	KEY board
C	I	UT-7205	1	PRINTER DRIVER board
C	J	669599	1	DC to AC inverter
D	K	677322B	2	PRE AMP board

Rank	
A	Requires replacement within about 1 to 3 months.
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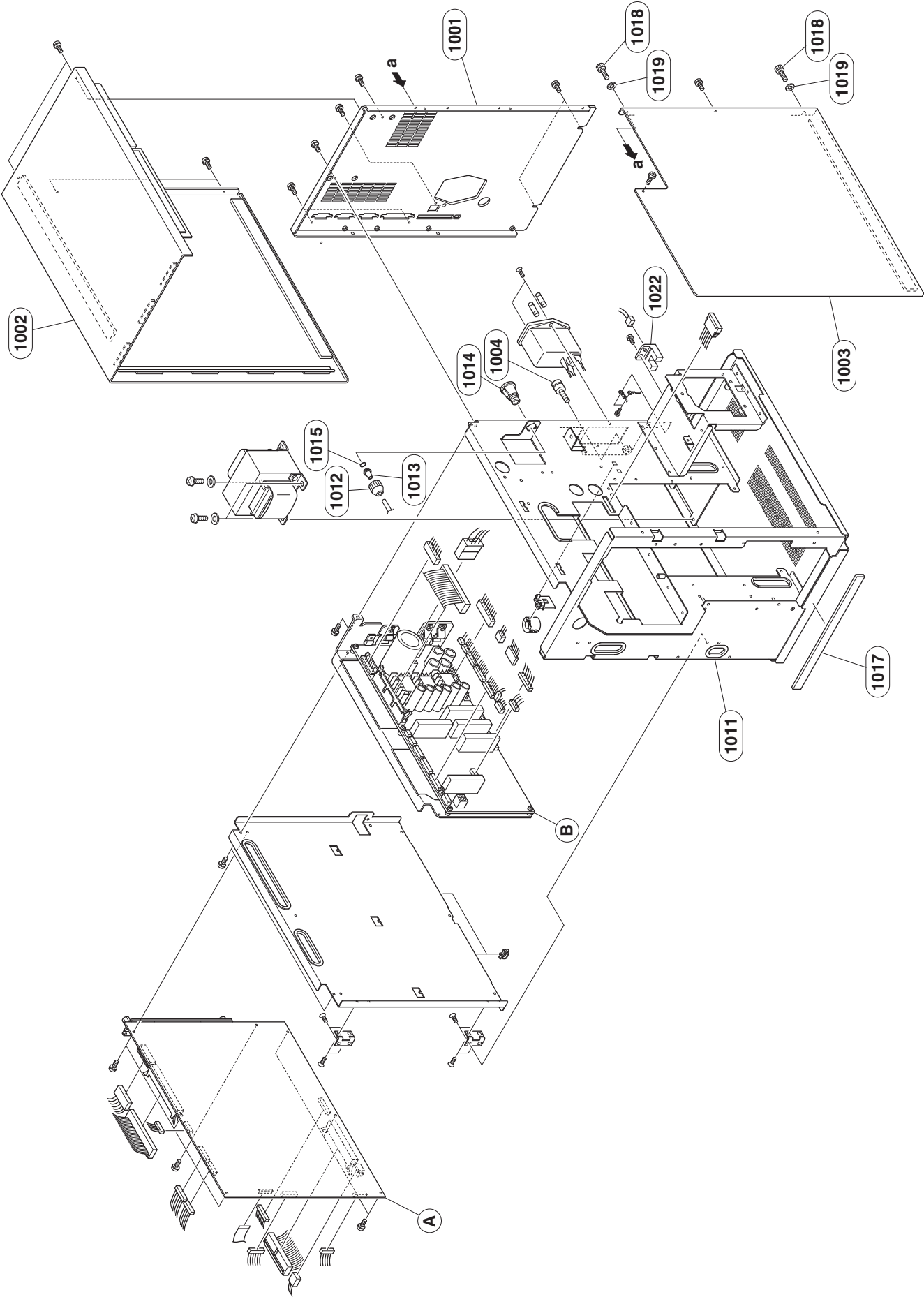


1. REPLACEABLE PARTS LIST

Chassis

Rank	Index	NK Code No.	Qty	Description
C	1001	6122-900451	1	Rear cover (for MEK-6450J/K)
C	1001	6122-900068G	1	Rear cover (for MEK-6400C/J/K, MEK-6410C/J/K, for MEK-6420C/J/K)
C	1002	6143-900572	1	Top cover assy
C	1003	6143-900581	1	Right side cover assy
C	1004	6144-005993A	1	Equipotential terminal
D	1011	6141-900193A	1	Chassis assy
C	1012	6114-095942B	1	Tube fitting nut
C	1013	6114-095951B	1	Tube stopper
C	1014	6113-032014B	1	Single manifold
C	1015	553144A	1	O-ring P-3 (fluorocarbon rubber)
C	1017	6114-903891	1	Shielding sponge sheet (L=200)
C	1018	6114-903989	2	Screw
C	1019	901232	2	Plastic flat washer
C	1022	676769A	1	Photo-interruptor KI-1234-AA
C	A	UT-7192	1	AMP CONTROL board (for MEK-6400C/J/K)
C	A	UT-71921	1	AMP CONTROL board (for MEK-6410C/J/K)
C	A	UT-71922	1	AMP CONTROL board (for MEK-6420J/K)
C	A	UT-71923	1	AMP CONTROL board (for MEK-6420C)
C	A	UT-71924	1	AMP CONTROL board (for MEK-6450C/J/K)
C	B	UT-7193	1	POWER board

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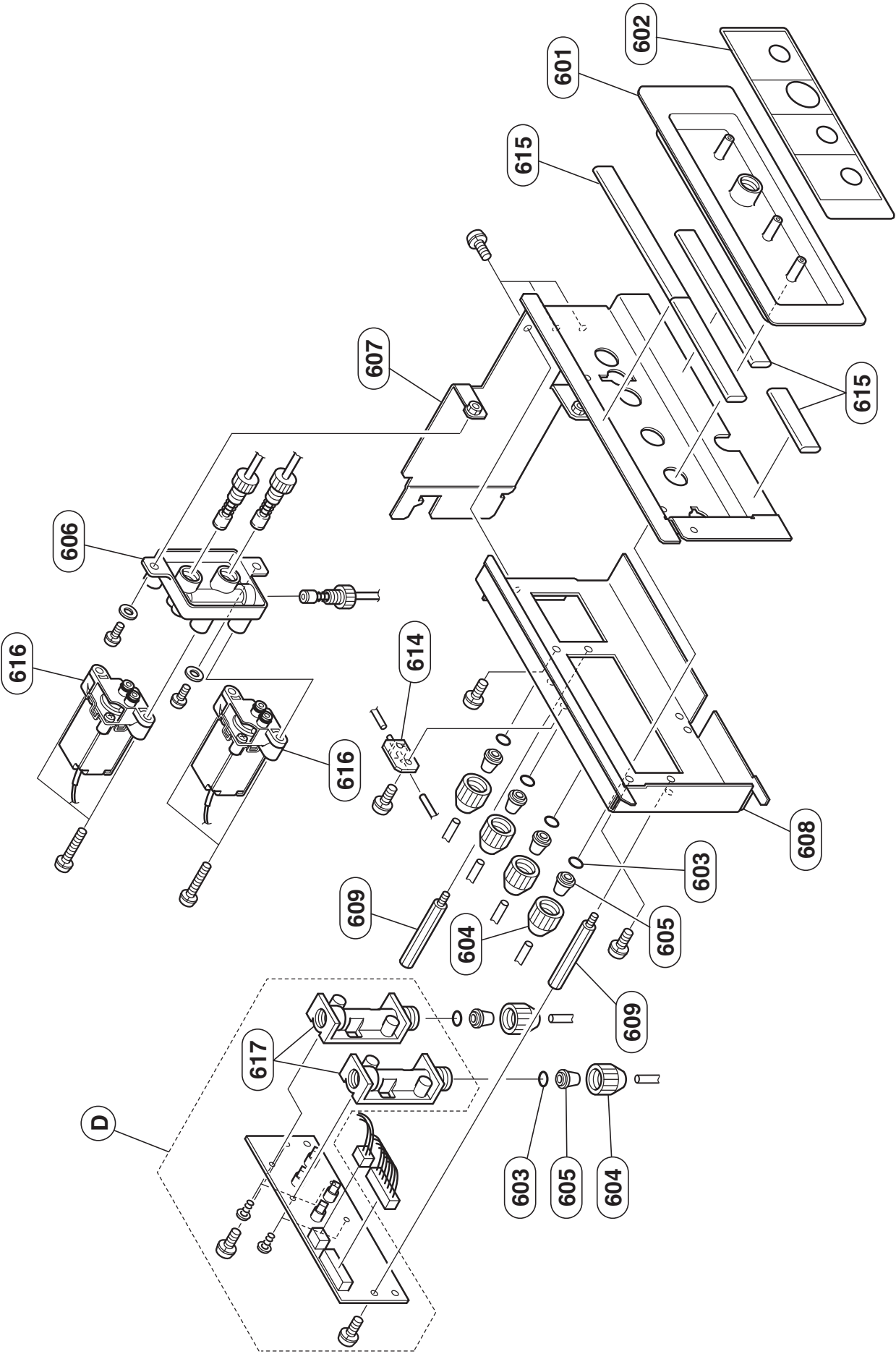


1. REPLACEABLE PARTS LIST

JQ-640V Inlet/Outlet Unit

Rank	Index	NK Code No.	Qty	Description
C	601	6113-900824F	1	Port casting panel
C	602	6124-900135	1	Port label
C	603	553144A	6	O-ring (fluorocarbon rubber)
C	604	6114-095942B	6	Tube fitting nut
C	605	6114-095951B	6	Tube stopper
D	606	6113-900646D	1	Block S (valve holder)
C	607	6112-900657E	1	Port holder 1
C	608	6113-901458E	1	Port holder 2
C	609	128452	2	Spacer bolt
D	614	6114-902963B	1	Metal tube joint
C	615	6114-099778	2	Shielding sponge sheet
D	616	XP-612V	2	2-way valve
C	617	6113-034476A	2	Bubble detector
C	D	UT-7199	1	LIQUID SENSOR board

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1. REPLACEABLE PARTS LIST

JQ-641V/JQ-642V Valve Unit

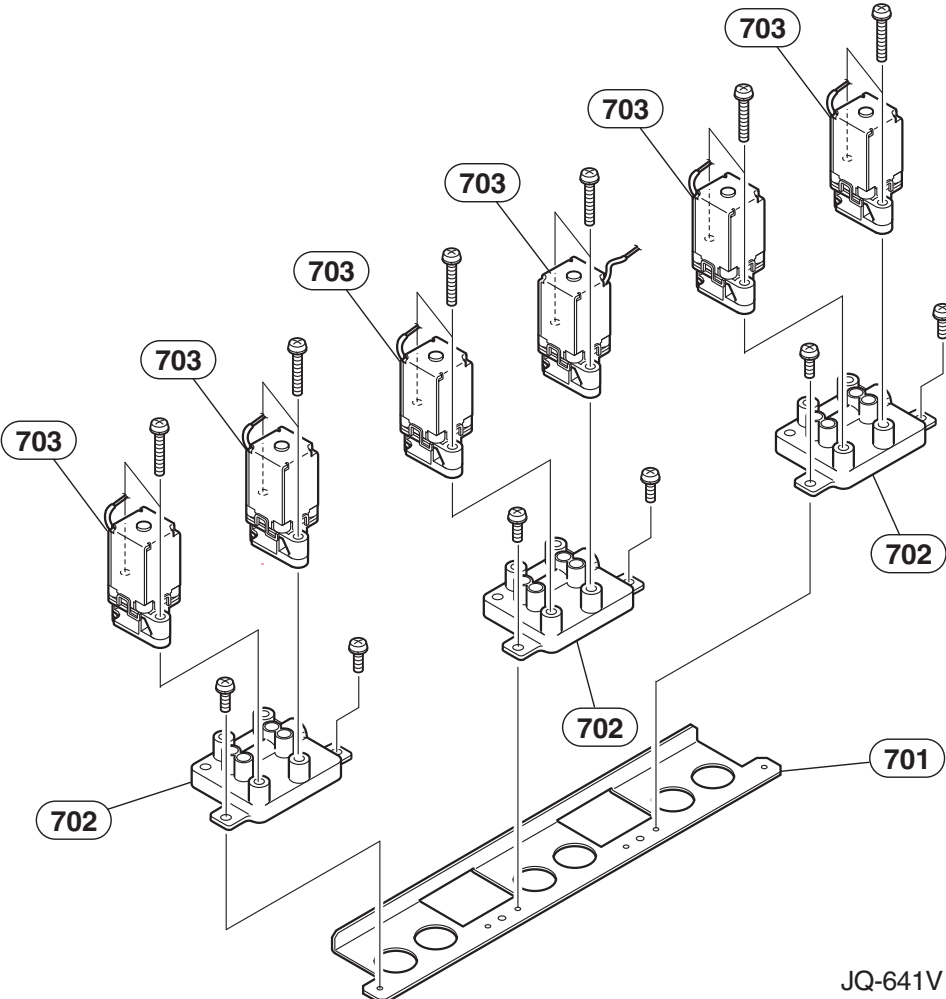
JQ-641V

Rank	Index	NK Code No.	Qty	Description
C	701	6113-901538C	1	Valve holder basement
D	702	6113-900646D	3	Block S (valve holder)
D	703	XP-612V	6	2-way valve

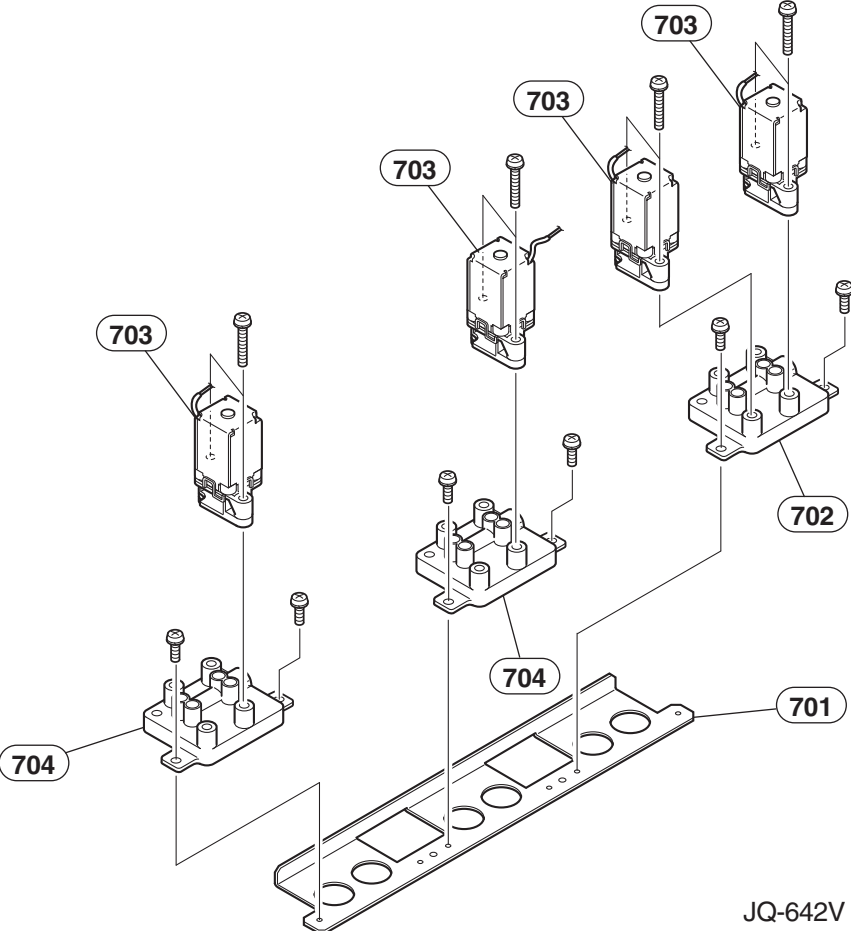
JQ-642V

Rank	Index	NK Code No.	Qty	Description
C	701	6113-901538C	1	Valve holder basement
D	702	6113-900646D	1	Block S (valve holder)
D	703	XP-612V	4	2-way valve
D	704	6113-902778A	2	Block S 6410 (valve holder)

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JQ-641V



JQ-642V

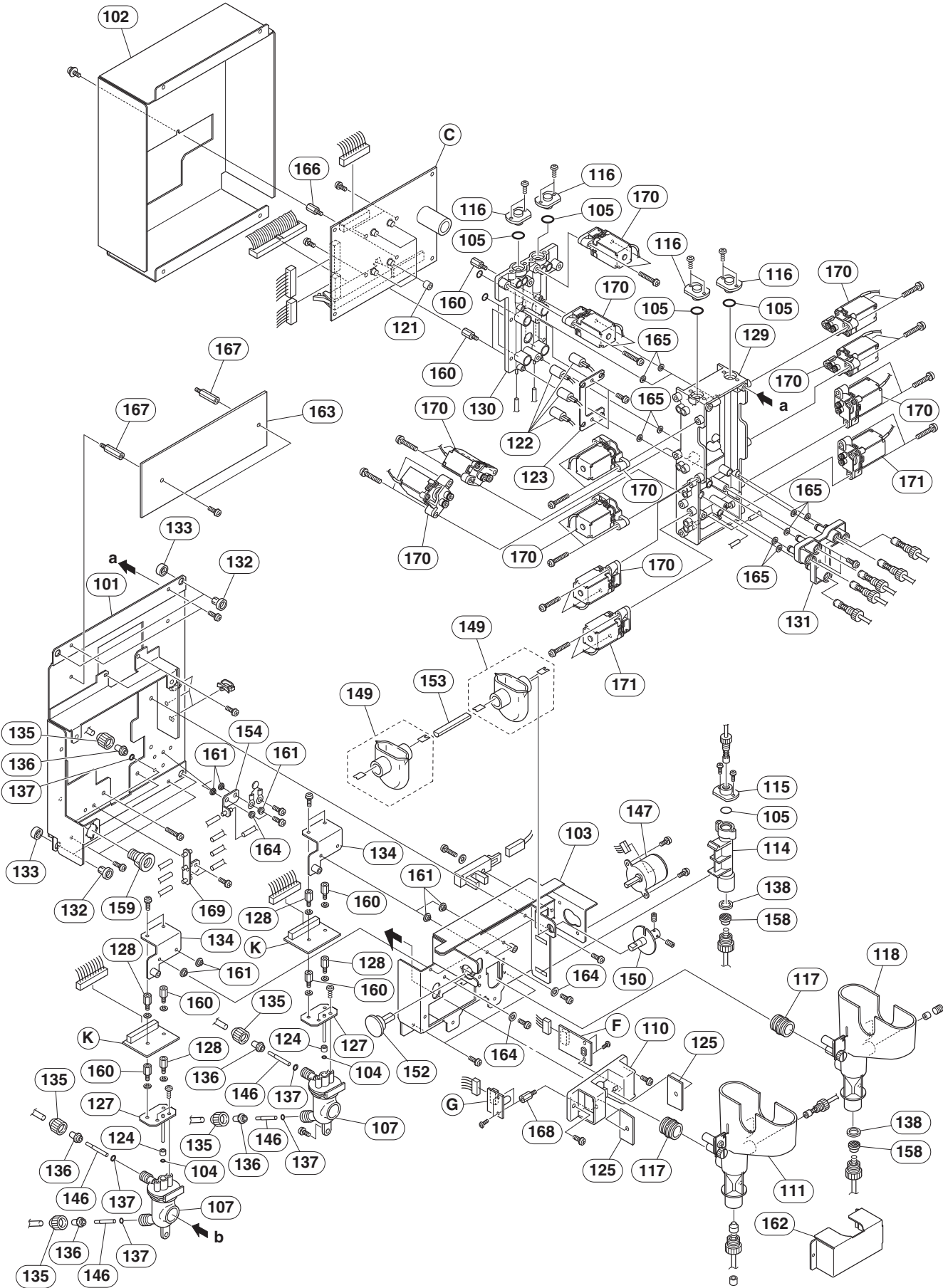
1. REPLACEABLE PARTS LIST

MC-640V Measuring Unit

Rank	Index	NK Code No.	Qty	Description
D	101	6112-900675G	1	MC chassis
D	102	6113-901716D	1	MC cover
D	103	6112-900684H	1	MC bath chassis
D	104	459264	2	O-ring (silicone rubber)
D	105	315375A	5	O-ring (red silicone rubber)
D	107	YZ-0287	2	Vacuum chamber assy
D	110	6113-031853A	1	HGB case
C	111	YZ-0362	1	WBC bath assy (6400)
C	114	6113-043305B	1	Air trap
C	115	6114-126143	1	Air trap cap
C	116	6114-901251C	4	Cap
C	117	YZ-0345	2	Aperture cap assy (80 µm in dia.)
C	118	YZ-0361	1	RBC bath assy (6400)
D	121	6114-902811B	4	Collar
D	122	6114-901117F	4	LED holder
D	123	6114-905416	1	LED plate
D	124	6114-095871	2	Sealing collar
D	125	6114-099635B	2	HGB spacer
D	127	6144-900133D	2	Electrode assy
D	128	688195	4	PPS spacer
D	129	6111-900115C	1	Fluid path main block
D	130	6112-900265E	1	Manometer
D	131	6113-900655C	1	MC port block
D	132	132144A	4	Plastic bush
D	133	132153A	4	Plastic collar
D	134	6114-902794D	2	Electrode connection plate
C	135	6114-095942B	5	Tube fitting nut
C	136	6114-095951B	5	Tube stopper
C	137	553144A	5	O-ring (fluorocarbon rubber)
B	138	2114-082062B	2	Filter packing S
D	146	6114-123003B	4	Tube joint ID1
D	147	688186A	1	Stepping motor
C	149	YZ-0367	2	Sub bath assy (6400)

Rank	Index	NK Code No.	Qty	Description
C	150	6114-901278F	1	Sub bath shaft
C	152	6114-901233F	1	Sub bath spacer
C	153	6114-901269D	1	Sub bath connection shaft
D	154	6114-902963B	1	Metal tube joint
A	158	6144-001899D	2	Filter assy
D	159	6113-032014B	1	Manifold
D	160	127997A	8	Spacer bolt
D	161	688177	7	Ivory bush
C	162	6114-903124C	1	HGB cover
C	163	6113-903374	1	MC plate
D	164	900973	5	Ivory washer
D	165	6114-136462A	9	O-ring (silicon rubber)
D	166	127907A	1	Spacer bolt (L12)
D	167	127952A	2	Spacer bolt (L15)
D	168	901018	2	Spacer
D	169	6114-903971A	1	Metal tube joint
D	170	XP-612	10	2-way valve
D	171	XP-602	2	2-way valve
D	C	UT-7198	1	MEASURING board
D	F	UT-7201	1	HGB AMP board
D	G	UT-7202	1	HGB LED board
D	K	677322B	2	PRE AMP board

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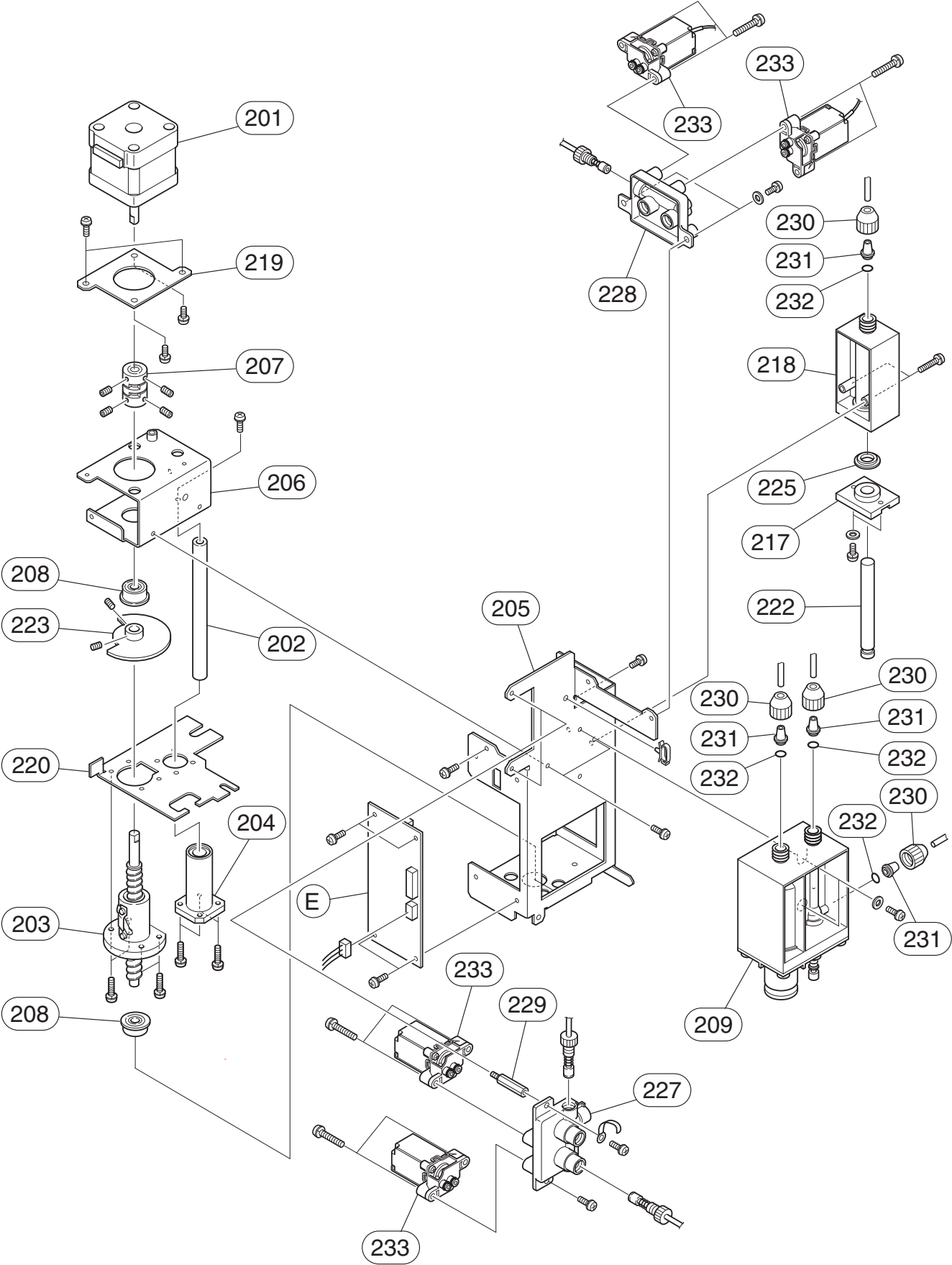


1. REPLACEABLE PARTS LIST

MD-640V Combination Syringe Pump Unit

Rank	Index	NK Code No.	Qty	Description
D	201	686954	1	Stepping motor
D	202	6114-903106	1	Guide shaft
D	203	6144-006279D	1	Ball screw assy
D	204	688123	1	Ball bush
D	205	6112-900318F	1	Basement
D	206	6113-900869D	1	Motor holder
D	207	487296	1	Universal coupling
D	208	688132	2	Flanged bearing
C	209	YZ-0338	1	Diluter cylinder assy
C	217	6114-125839A	1	Cylinder plate
C	218	6113-041085B	1	Cylinder block
D	219	6114-901224C	1	Motor plate
D	220	6114-901162D	1	Piston holder
C	222	6114-114272B	1	2 mL piston
D	223	6144-900267	1	Interrupter assy
C	225	688168	1	Bal Seal PTFE seal (coil spring included)
D	227	6113-900664D	1	Block M
D	228	6113-900646D	1	Block S
D	229	128042A	2	Spacer bolt
C	230	6114-095942B	4	Tube fitting nut
C	231	6114-095951B	4	Tube stopper
C	232	553144A	4	O-ring (fluorocarbon rubber)
D	233	XP-612V	4	2-way valve
D	E	UT-7200	1	MIXED PUMP board

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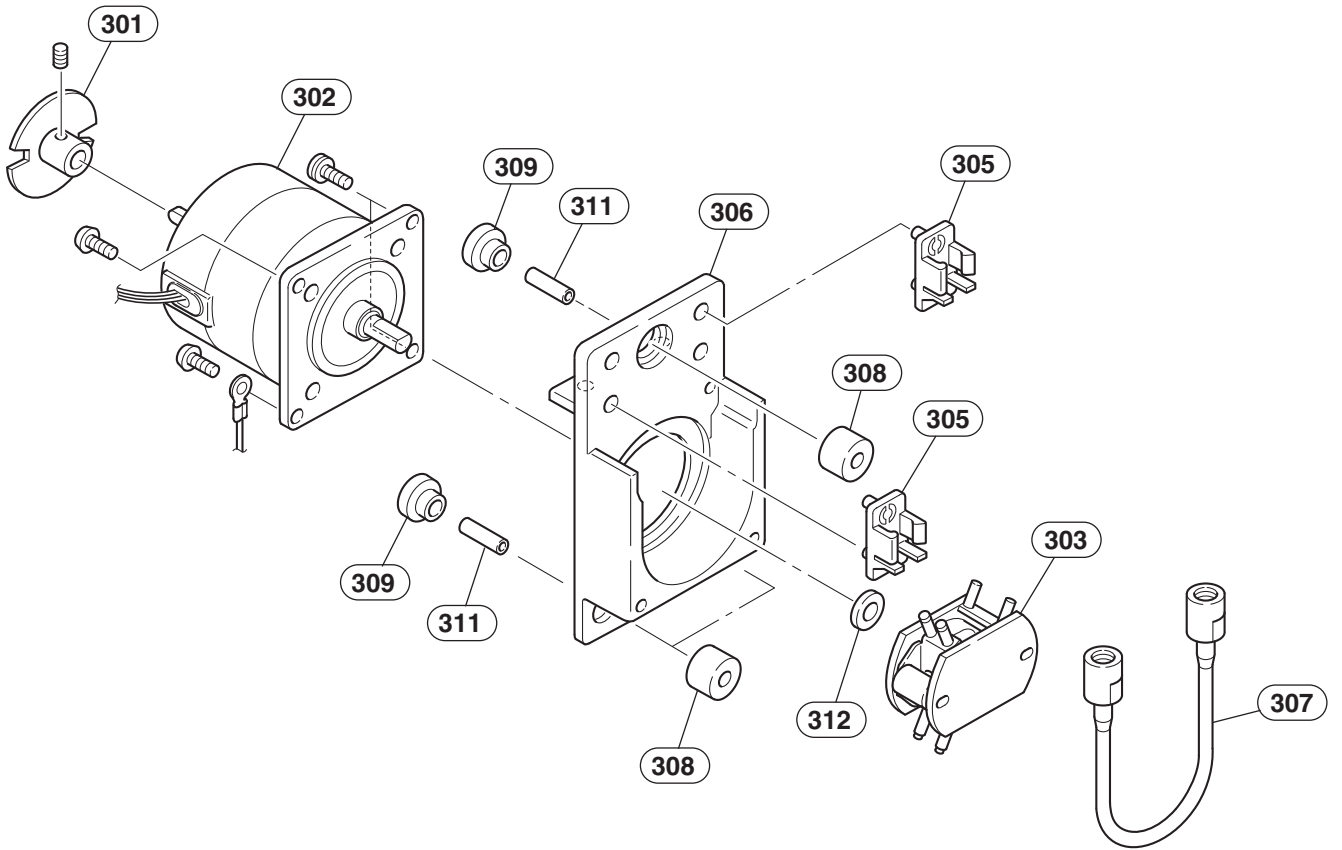


1. REPLACEABLE PARTS LIST

MP-640V Pump Unit

Rank	Index	NK Code No.	Qty	Description
D	301	6144-900222B	1	Interrupter assy
D	302	314492B	1	Stepping motor
C	303	YS-003B4	1	Rotor assy
C	305	6113-016424D	2	Tube holder
D	306	6112-005385A	1	Pump unit chassis block
A	307	T462 (YS-001B1)	1	Pump tube (N)
D	308	2114-044611A	3	Collar
D	309	2114-044638A	3	Bush
D	311	2114-072224A	3	Pump spacer
D	312	6114-907388	1	Rotor spacer 2

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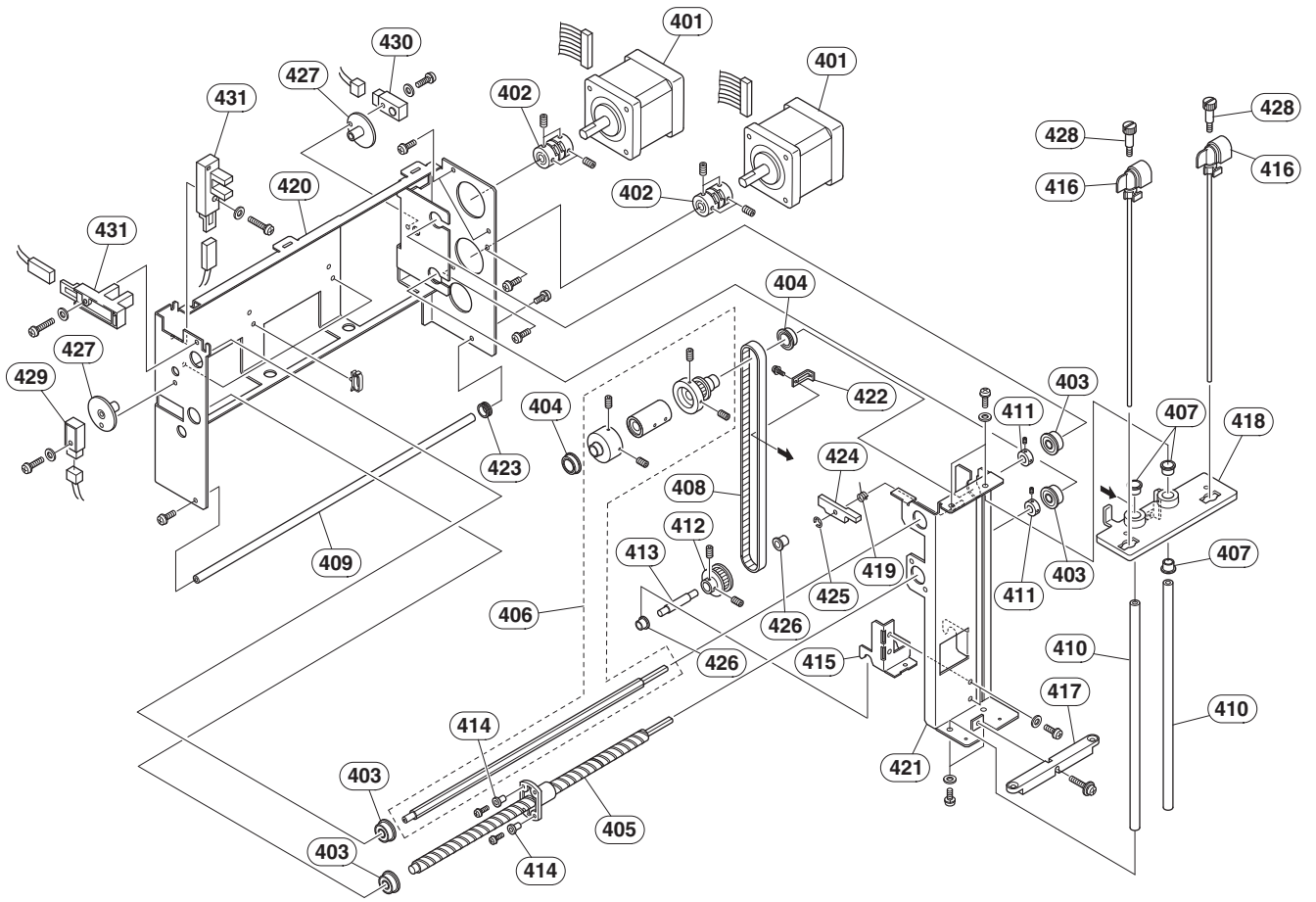


1. REPLACEABLE PARTS LIST

MS-640V Sampler Unit

Rank	Index	NK Code No.	Qty	Description
D	401	686954	2	Stepping motor
D	402	688212	2	Shaft coupling
D	403	689078	4	Bearing
D	404	689069	2	Bearing
D	405	6113-900896A	1	Slipping screw
D	406	6113-900878F	1	Spline shaft
D	407	547017A	3	Flange bush
D	408	689087	1	Timing belt
D	409	6113-900887B	1	Shaft H
D	410	6114-901349A	2	Shaft V
D	411	6114-901367A	2	Drive shaft adjuster
D	412	6114-094177A	1	Pulley
D	413	6114-901394D	1	Pulley shaft
D	414	6114-901554A	2	Spacer
D	415	6114-901322D	1	Pulley holder
C	416	T479A	2	Sampling nozzle assy
C	417	6114-902598C	1	Sampling nozzle guide
D	418	6113-900762G	1	Sampling nozzle holding plate
D	419	6114-901581D	1	Spring
D	420	6112-902557	1	Horizontal movement chassis
D	421	6112-900452K	1	Vertical movement chassis
D	422	6114-901572D	1	Belt stopper
D	423	6114-901358A	1	Sampling nozzle holding plate collar
D	424	6114-901376D	1	Sensor holding plate
D	425	106993	1	Retainer plate
D	426	689051	2	Flange bush
D	427	6114-903418A	2	Sensor holder
C	428	6114-902606B	2	Sampling nozzle fastening screw
C	429	673781A	1	Photoemission KB1281-AA12
C	430	673799A	1	Photosensor KB1281-AA22
C	431	190544B	2	Photo-interruptor GP1A05A J000F

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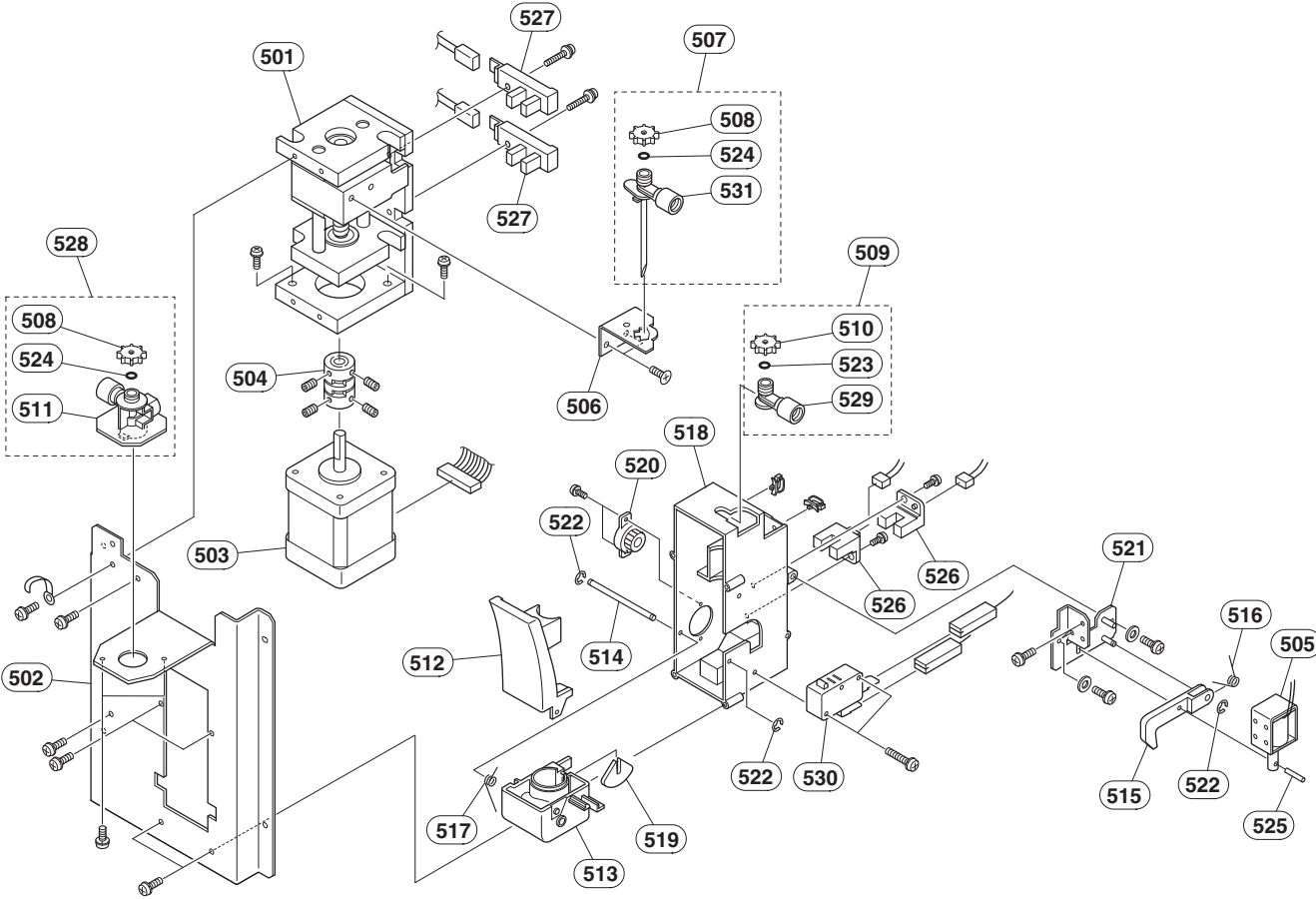


1. REPLACEABLE PARTS LIST

MS-641V Cap Pierce Unit

Rank	Index	NK Code No.	Qty	Description
D	501	689096	1	Sample tube holder block
D	502	6112-900497I	1	Cap pierce unit chassis
D	503	686963	1	Stepping motor
D	504	517086	1	Shaft coupling
D	505	576743C	1	Solenoid switch
D	506	6114-902277D	1	Bottom of sample tube holder
C	507	T478B	1	Cap pierce needle assy
C	508	6114-902241E	2	Nozzle guide
C	509	YZ-0365	1	Rinse unit assy for closed mode
C	510	6114-902268E	1	Rinse unit cap
C	511	6113-901547C	1	Rinse unit for open mode
D	512	6113-901262D	1	Door
D	513	6113-901271G	1	Sample tube holder inner
D	514	6114-902615A	1	Door shaft
D	515	6114-902143B	1	Door open lever
D	516	6114-902633A	1	Door lock spring
D	517	6114-902624A	1	Door open spring
D	518	6113-901289C	1	Cap pierce unit basement
D	519	6114-902152B	1	Sample tube detector
D	520	576805	1	Damper
D	521	6114-902286C	1	Lever plate
D	522	106993	3	Retainer plate
C	523	315366	1	O-ring
C	524	295538	2	O-ring
D	525	293629	1	Corrugated spring pin
C	526	676769A	2	Photo-interruptor KI-1234-AA
C	527	190544B	2	Photo-interruptor GP1A05AJ000F
C	528	YZ-0354	1	Rinse unit assy for open mode
C	529	6114-902259C	1	Rinse unit for closed mode
C	530	486047	1	Micro switch
C	531	6144-900187D	1	Cap pierce needle

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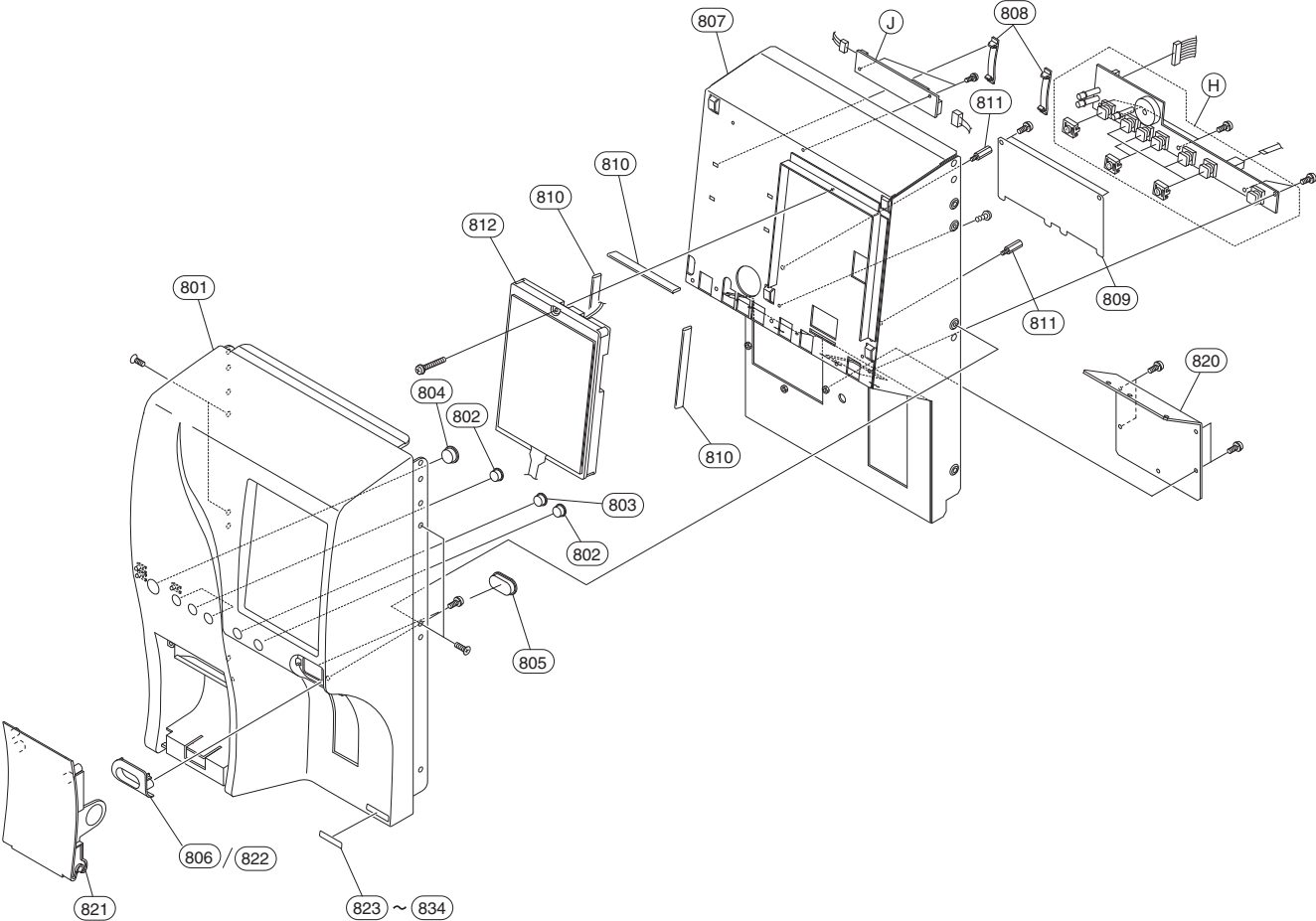


1. REPLACEABLE PARTS LIST

PV-640VK/PV-641VK Front Panel Unit

Rank	Index	NK Code No.	Qty	Description
D	801	YZ-0366	1	Front panel assy
D	802	6114-084312B	4	Round key top cover (ivory, small)
D	803	6114-094266A	1	Round key top cover (orange, small)
D	804	6114-084339B	1	Round key top cover (ivory, large)
D	805	6114-084802B	1	Oval key top cover (ivory)
D	806	6124-900322A	1	EJECT panel (for PV-640VK)
D	807	6111-900392H	1	Front cover frame
C	808	693153	2	Flat cable tie
C	809	6114-902999D	1	Rigid PVC sheet
D	810	6114-123877	3	Shielding sponge sheet
D	811	127952A	2	Spacer bolt
D	812	669554	1	LCD
C	820	6114-903962	1	Blank cover
D	821	6113-901333B	1	Blank panel (MEK-6400)
D	822	6124-900679	1	Measure panel (for PV-641VK)
D	823	6124-900581	1	MEK-6400C sticker
D	824	6124-900447	1	MEK-6400J sticker
D	825	6124-900438	1	MEK-6400K sticker
D	826	6124-900616	1	MEK-6410C sticker
D	827	6124-900563	1	MEK-6410J sticker
D	828	6124-900572	1	MEK-6410K sticker
D	829	6124-900625	1	MEK-6420C sticker
D	830	6124-900599	1	MEK-6420J sticker
D	831	6124-900607	1	MEK-6420K sticker
D	833	6124-901072	1	MEK-6450J sticker
D	834	6124-901081	1	MEK-6450K sticker
C	H	UT-7203	1	KEY board
C	J	669599	1	DC to AC inverter

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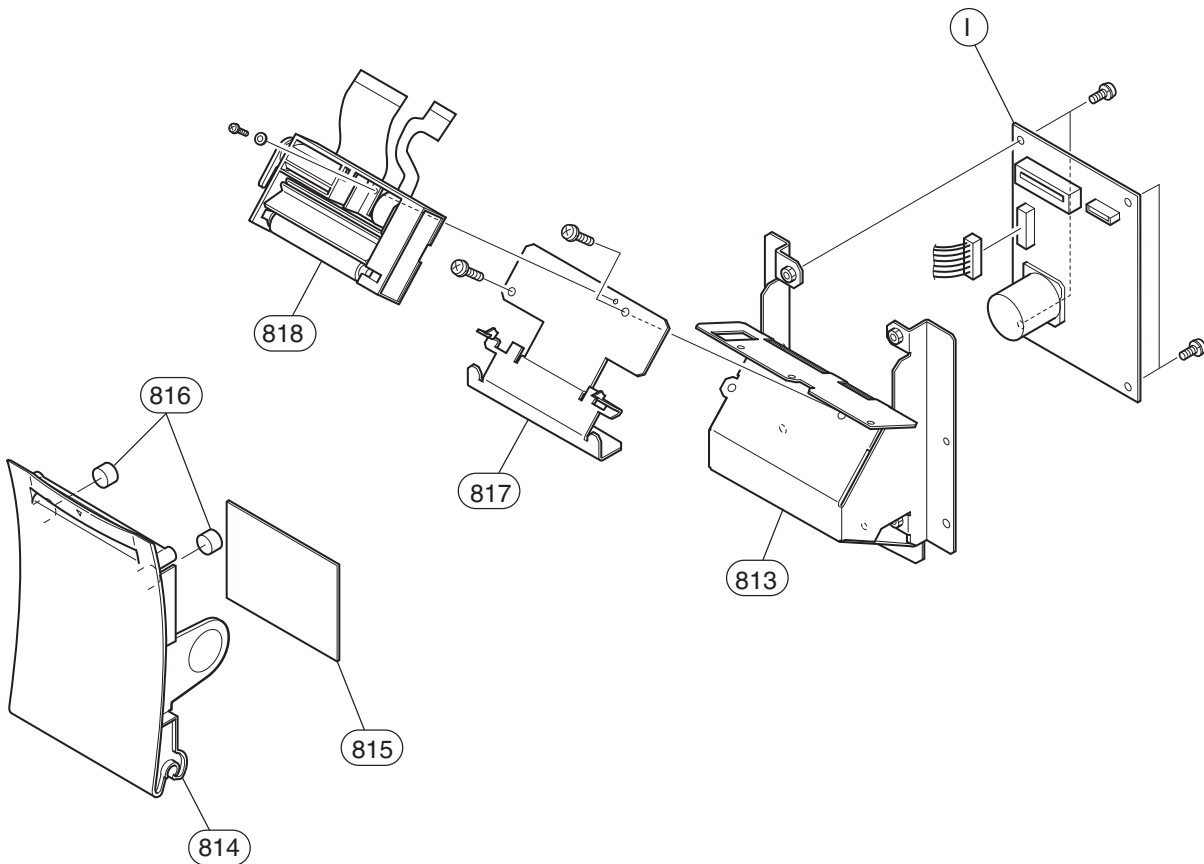


1. REPLACEABLE PARTS LIST

WA-640VK Printer Unit

Rank	Index	NK Code No.	Qty	Description
D	813	6113-901449	1	Printer case
C	814	6112-903324	1	Printer door
C	815	6124-901811	1	Paper loading instruction sticker
C	816	301488	2	Magnet
D	817	6113-900985D	1	Printer holder
C	818	483273B	1	Thermal array printer head
C	I	UT-7205	1	PRINTER DRIVER board

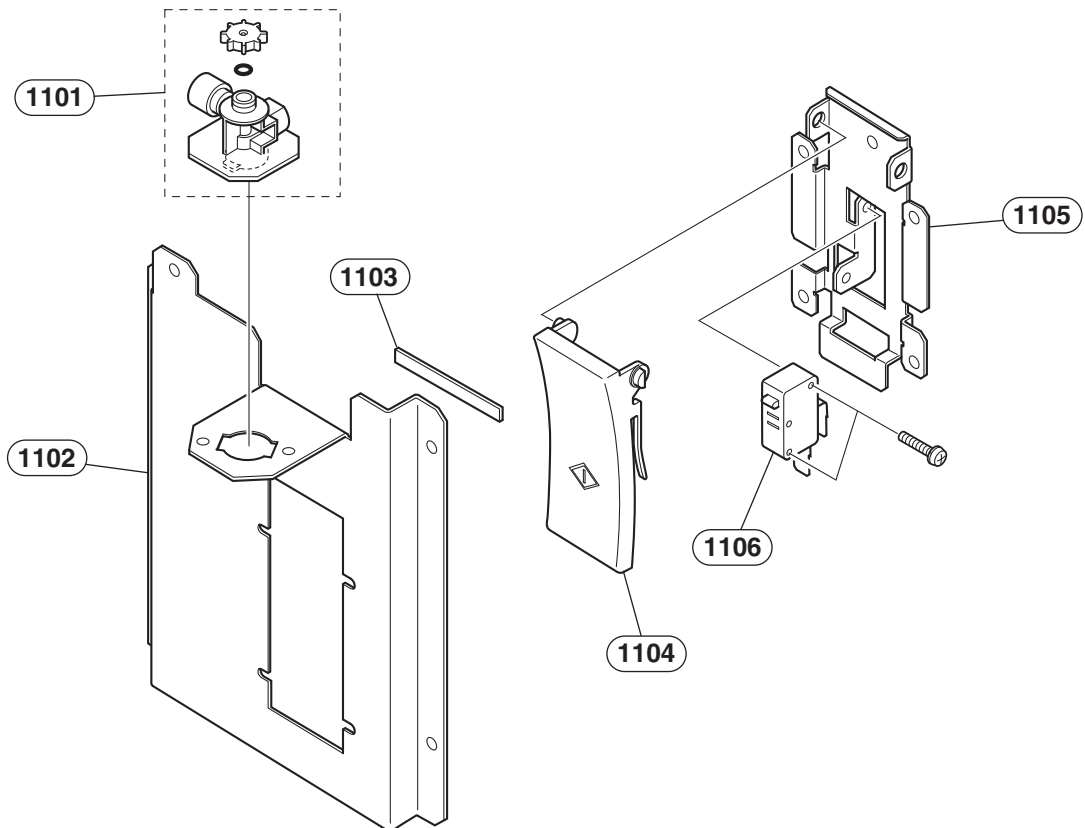
Rank	
A	Requires replacement within about 1 to 3 months.
B	Requires replacement within about 6 to 12 months.
C	Requires replacement when this component has deterioration or damage.
D	Requires replacement which must be done by service personnel trained in NK or by distributor.



MR-640V Rinse Unit

Rank	Index	NK Code No.	Qty	Description
C	1101	YZ-0365	1	Closed rinse unit
D	1102	6113-052866E	1	Front basement
D	1103	6114-904079	1	Shielding sponge sheet
D	1104	6113-052839B	1	Diluter switch
D	1105	6113-052848B	1	Switch holder
D	1106	486047	1	Switch

Rank	
A	Requires replacement within about 1 to 3 months.
B	Requires replacement within about 6 to 12 months.
C	Requires replacement when this component has deterioration or damage.
D	Requires replacement which must be done by service personnel trained in NK or by distributor.



Section 2 Hydraulic System

Tube List	2.2
Hydraulic System Diagram	2.4

Tube List

MEK-6400

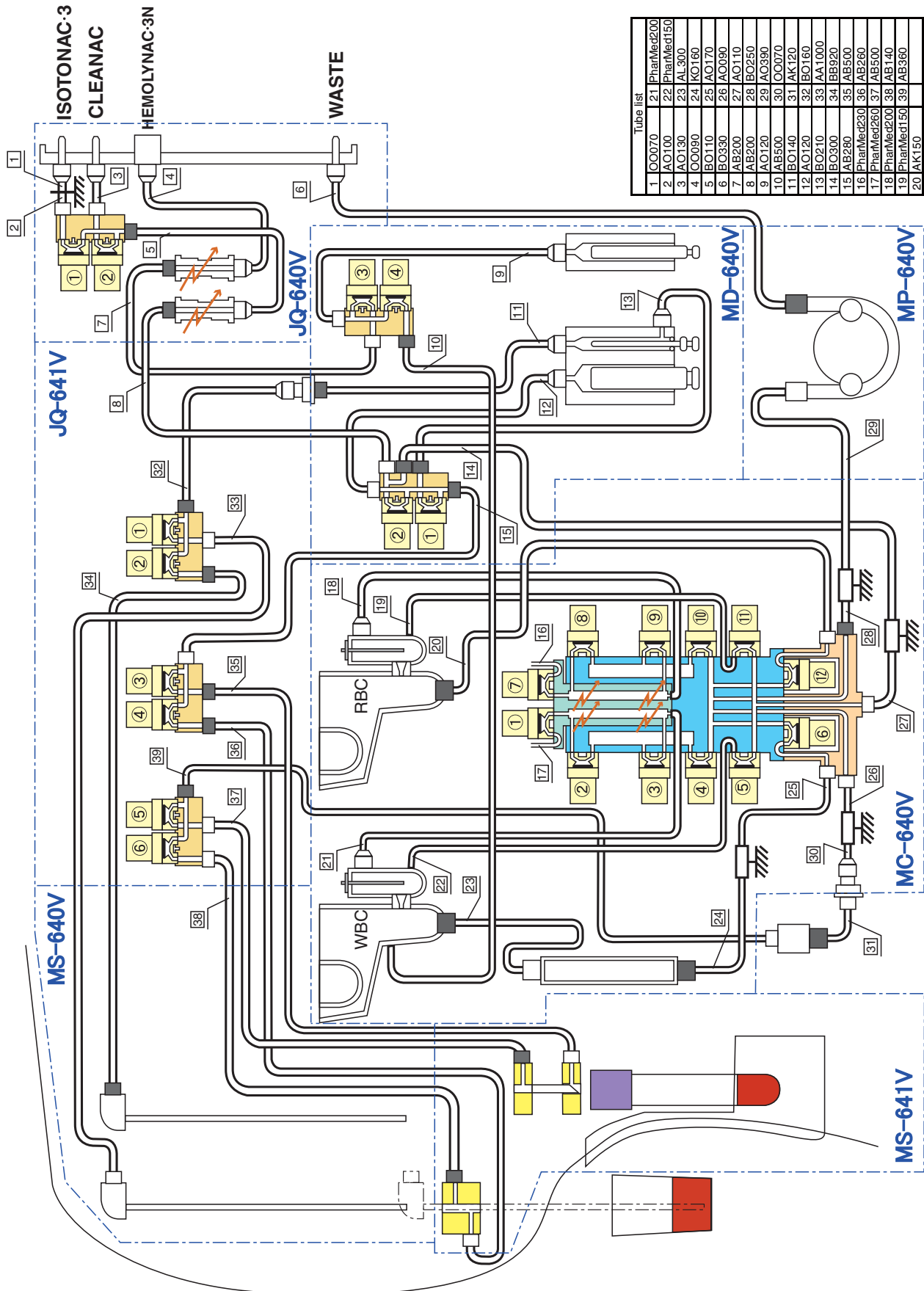
Index	NK Code No.	Description
1	YK-OO070	Tube OO 070
2	YK-AO100	Tube AO 100
3	YK-AO130	Tube AO 130
4	YK-OO090	Tube OO 090
5	YK-BO110	Tube BO 110
6	YK-BO330	Tube BO 330
7	YK-AB200	Tube AB 200
8	YK-AB200	Tube AB 200
9	YK-AO120	Tube AO 120
10	YK-AB500	Tube AB 500
11	YK-BO140	Tube BO 140
12	YK-AO120	Tube AO 120
13	YK-BO210	Tube BO 210
14	YK-BO300	Tube BO 300
15	YK-AB280	Tube AB 280
16	6114-142018	Tube PharMed 230
17	6114-142027	PharMed Tube 260
18	6114-142009	PharMed Tube 200
19	6114-141991	PharMed Tube 150
20	YK-AK150	Tube AK 150
21	6114-142009	PharMed Tube 200
22	6114-141991	PharMed Tube 150
23	YK-AL300	Tube AL 300
24	YK-KO160	Tube KO 160
25	YK-AO170	Tube AO 170
26	YK-AO090	Tube AO 090
27	YK-AO110	Tube AO 110
28	YK-BO250	Tube BO 250
29	YK-AO390	Tube AO 390
30	YK-OO070	Tube OO 070
31	YK-AK120	Tube AK 120
32	YK-BO160	Tube BO 160
33	YK-00009	Tube AA 1000
34	YK-BB920	Tube BB 920
35	YK-AB500	Tube AB 500
36	YK-AB260	Tube AB 260
37	YK-AB500	Tube AB 500
38	YK-AB140	Tube AB 140
39	YK-AB360	Tube AB 360

MEK-6410/6420/6450

Index	NK Code No.	Description
1	YK-OO070	Tube OO 070
2	YK-AO100	Tube AO 100
3	YK-AO130	Tube AO 130
4	YK-OO090	Tube OO 090
5	YK-BO110	Tube BO 110
6	YK-BO330	Tube BO 330
7	YK-AB200	Tube AB 200
8	YK-AB200	Tube AB 200
9	YK-AO120	Tube AO 120
10	YK-AB500	Tube AB 500
11	YK-BO140	Tube BO 140
12	YK-AO120	Tube AO 120
13	YK-BO210	Tube BO 210
14	YK-BO300	Tube BO 300
15	YK-AB280	Tube AB 280
16	6114-142018	Tube PharMed 230
17	6114-142027	PharMed Tube 260
18	6114-142009	PharMed Tube 200
19	6114-141991	PharMed Tube 150
20	YK-AK150	Tube AK 150
21	6114-142009	PharMed Tube 200
22	6114-141991	PharMed Tube 150
23	YK-AL300	Tube AL 300
24	YK-KO160	Tube KO 160
25	YK-AO170	Tube AO 170
26	YK-AO090	Tube AO 090
27	YK-AO110	Tube AO 110
28	YK-BO250	Tube BO 250
29	YK-AO390	Tube AO 390
30	YK-OO070	Tube OO 070
32	YK-BO160	Tube BO 160
33	YK-00009	Tube AA 1000
34	YK-BB920	Tube BB 920
36	YK-AB280	Tube AB 280
38	YK-AB160	Tube AB 160
39	YK-AB360	Tube AB 360

Hydraulic System Diagram

MEK-6400



MEK-6410/6420/6450

