OPERATION AND MAINTENANCE MANUAL

BSD-3000L
BSD-3200L
BSD-3300L
BSD-6200L
BSD-6600L
BSD-6600LF
BSD-8000L
BSD-8200L
BSD-8800L
BSD-8800LF

LOW VOLTAGE
METAL ASSEMBLY SCREWDRIVER

KILEWS INDUSTRIAL CO., LTD.

http://www.kilews.com

Y20015L-4-002

NOTICE

Metal Assembly Screwdrivers are designed for installing threaded fasteners in light industrial and appliance manufacturing applications.
KILEWS is not responsible for customer modification of tools for applications on which KILEWS was not consulted.

WARNING

Important safety information enclosed.
Read all these instructions before placing tool in service or operation this tool and save these instructions. It is the responsibility of the employer to place the information in this manual into the hands of the operator. Failure to observe the following warnings could result in injury. When using electric tools, Basic safety precautions should always be followed to reduce the risk of fire, electric shock and personal injury, including the following:

1. General Safety Rules

2. Operations Cautions

3. Specifications

4. Description Of Operation

5. Torque Adjustment Operation

6. Accessories

7. Servicing

1. General Safety Rules

WARNING! Read all instructions Failure to follow all instructions listed below may result in electric shock fire and/or serious injure. The term “power tool” in all of the warning listed below refer to your mains operated (corded) power tool or battery operated (cordless) power tool.

SAVE THESE INSTRUCTIONS

1) Electrical Safety

a) **Keep work area clean and well lit.** Cluttered and dark areas invite accidents.

b) **Do not operate power tools in explosive atmosphere, such as in the presence of flammable liquids, gases or dust.** Power tools creat sparks which may ignite the dust of fumes.

c**) Keep children, and bystanders away while operating a power tool.** Distractions can cause you to lose control.

2) Electrical Safety

a) **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools**. Unmodified plugs and matching outlets will reduce risk of electric shock.

b) **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.

c) **Don’t expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.

d) **Do not abuse the cord. Never use the cord to carry, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.

e) **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** □□Use of cord suitable for outdoor use reduces the risk of electric shock.

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3) Personal Safety

a) **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use power tool while you are tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating power tools may result in serious personal injury.

b) **Use safety equipment. Always wear eye protection.** Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.

c) **Avoid accidental starting. Ensure the switch is in the off position before plugging in.** Carrying power tools with your finger on the switch or plugging in power tools that have the switch on invites accidents.

d) **Remove any adjusting keys or wrench before turning the power tool on.** A wrench or a key that is left attached to a rotating part of the power tool may result in personal injury.

e) **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.

f) **Dress properly. Do not wear loose clothing or jewelry. Keep your hair, clothing, and gloves away from moving parts.** Loose clothes, jewelry, or long hair can be caught in moving parts

g) **Secure work.** Use clamps or a vice to hold the work. It is safer than using your hand and frees both hands to operate the tool.

h) **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of these devices can reduce dust related hazards.

i) **Use a safety device.** Wear protective earmuffs to reduce personal injury.

Noise:
The typical A-weighted noise level acc. To EN62841-2-2
. Sound pressure level (LpA): 53.6 dB(A)
. Sound power level (LwA): 64.6 dB(A)

Vibration:
The vibration total valoue acc. EN62841-2-2
. Vibration emission value ah (m/s^2): 0.17 m/s^2
. Uncertainty K (m/s^2): 0.02 m/s^2

4) Power tool Use and Care

a) **Do not force the power tool. Use the correct power tool for your application.** The correct power tool will do the job better and safer at the rate for which it was designed.

b) **Do not use power tool if switch does not turn it on or off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.

c) **Disconnect the plug from the power source before making any adjustments, changing accessories, or storing the power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.

d) **Store idle power tools out of reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.

e) **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tools operation. If damaged, have the power tool repaired before use.** Many accidents are cause by poorly maintained power tools.

f) **Keep cutting tools sharp and clean**, properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.

g) **Use the power tools, accessories and tool bits etc., in accordance with these instructions and in the manner intended for the particular type of power tool, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from intended could result in a hazardous situation.

5) SERVICE

a) Have your power tool serviced by qualified repair person using only identical replacement parts, this will ensure that the safety of the power tool is maintained.

Additional information shall be provided

a) Instruction for putting into use
1. Setting-up or fixing power tool in a stable position as appropriate for power tools which can be mounted on a support.
2. Assembly
3. Connection to power supply, cable, fuse, socket type and earthing requirements.
4. Illustrated description of functions.
5. Limitations on ambient conditions.
6. List of contents.

b) Operating Instructions.
1. Setting and testing.
2. Tool changing.
3. Clamping of work.
4. Limits on size of work piece.
5. General instructions for use.

c) Maintenance and servicing.
1. Regular cleaning, maintenance, and lubrication.
2. Servicing by manufacture or agent, list of addresses.
3. List of user-replaceable parts.
4. Special tools which may be required.

6) Clamp fixed position for 3cm Nylon Fixed-Wire

The clamp fixed position for 3cm Nylon Fixed-Wire is at 390mm start count from the top of the screwdriver flat surface (for Iron ring socket type), as shown in Figure 3.

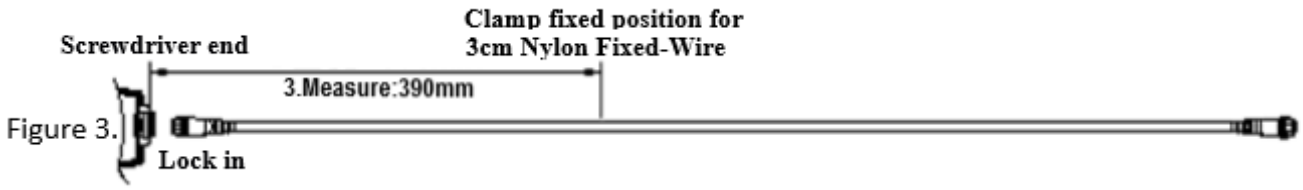


Figure 3.

2. Operations Cautions

1) Whenever changing a bit, make certain the Forward / Reverse Switch is in the " OFF " position and tool is unplugged.
2) Do not allow chemicals such as acetone, benzene, thinner, trichloroethylene ketone, or other similar chemicals to come in contact with the screwdriver housing as damage will result.
3) Do not drop or abuse the screwdriver.
4) Do not adjust the torque setting higher than 8 on the torque scale.
5) There should be a tool rest interval when cycles three seconds or longer. This tool is intended for a duty cycle of 0.8 sec on, 2.4 sec off.
6) Do not use this screwdriver for tightening wood screws. This is " Metal Assembly Screw Driver "
7) Do not operate the Forward / Reverse Switch the motor is running.
8) Whenever a tool is not being used, move the Forward / Reverse Switch to the "OFF" position and unplug the screwdriver.

CAUTION

- Do not drop or abuse the tool.
- Whenever a tool is not being used, position the Power Switch to the "OFF" position and unplug the power cord.

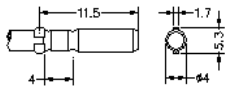
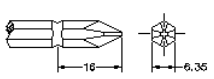
3. Specifications

REQUIREMENTS

This tool requires an power controller :

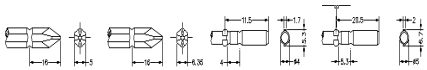
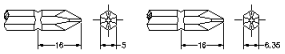
BSP-32HL-40W (input：220VAC 50/60Hz output：32/24VDC)
BSP-32VR-40W (input：220VAC 50/60Hz output：24-32VDC)
BSP-32HL-60W (input：100-240VAC 50/60Hz output：32/24VDC)
BSP-32VR-60W (input：100-240VAC 50/60Hz output：24-32VDC)
BSP-32HL (input：100-240VAC 50/60Hz output：32/24VDC)

DATA 1:

MODEL		BSD-3000L	BSD-3200L	BSD-3300L
Input voltage(DC)		32VDC		
Rated input		25W		
Bit torque	Kgf.cm	0.3-3.5	0.6-7	1-10
	Lbf.in	0.26-3.01	0.53-6.10	0.88-8.67
	N.m	0.03-0.34	0.06-0.69	0.1-0.98
Unloaded Rotation Speed (R.p.m) ±10%	HI	1000	1000	700
	LO	700	700	500
Metal assembly screw （mm）	Machine screw	1.0-2.3	1.4-2.6	1.6-3.0
	Tapping screw	1.0-2.0	1.4-2.3	1.6-2.6
Torque Accuracy (%)		±3%		
Torque Adjustment		Stepless		
Weight (g)		280		
Length(mm)		205		
Model of Torque Fixing Ring		KC-4C		
Model of Suspension Rack		KH-4(KC&KH-4)		
Bit Type		 Ø4mm	 HEX 6.35mm	
Power controller		BSP-32HL-40W;BSP-32VR-40W		

* 1N.m=10.2Kgf.cm 1N.m=8.85Lbf.in

DATA2:

MODEL		BSD-6200L	BSD-6600L	BSD-6600LF	BSD-8000L	BSD-8200L	BSD-8800L	BSD-8800LF
Input voltage (DC)		32VDC						
Rated input		48W			50W			
Bit torque	Kgf.cm	1-12	3-16	1-8	5-18	7-24	8-30	2-10
	Lbf.in	0.89-10.44	2.57-13.89	0.89-6.9	4.33-15.84	6.11-20.8	6.9-26.02	1.77-8.67
	N.m	0.1-1.18	0.29-1.57	0.1-0.78	0.49-1.76	0.69-2.35	0.78-2.94	0.2-0.98
Unloaded Rotation Speed (R.p.m) ±10%	HI	1000	1000	2000	1000	750	530	2000
	LO	700	700	X	700	520	350	×
Metal assembly screw（mm）	Machine screw	1.6-3.0	2.3-3.5	1.6-3.0	2.0-3.5	2.6-4.0	3.0-5.0	2.0-3.0
	Tapping screw	1.6-2.6	2.3-3.0	1.6-2.6	2.0-3.0	2.6-3.5	3.0-4.0	2.0-2.6
Torque Accuracy (%)		±3%						
Torque Adjustment		Stepless						
Weight (g)		480			600			
Length(mm)		230			260			
Model of Torque Fixing Ring		KC-3			KC-2			
Model of Suspension Rack		KH-3(KC&KH-3)			KH-3(KC&KH-1)			
Bit Type		 HEX 5mm, HEX 6.35mm, Ø4mm, Ø5mm			 HEX 5mm HEX 6.35mm			
Power controller		BSP-32HL-60W BSP-32VR-60W			BSP-32HL			

* 1N.m=10.2Kgf.cm 1N.m=8.85Lbf.in

4. Description of Operation

Attaching / detaching bit and bit type

Push up the holder clamp by finger tip, and it will be unlocked. Thus, the bit can be freely attached and detached (single finger notion type) select such a bit whose shank is equal to the size shown below.

■ Insert the power plug into a receptacle and set the changecover switch to "**F**" position.

■ Apply the bit to the screw head and press the lever or push main body to, then the switch will be turned ON to start the motor running.

■ When the screw is tighten and reach the torque that you had set, The tool will stopped automatically.

■ To reset the tool by releasing the lever to the original position or releasing the bit From the screw head.

■ To return the screw, set the changeover switch to "**R**" position.

5. Torque Adjustment Operation

To adjust the torque on these screwdrivers. Proceed as follows :

1. Determine the torque output of the tool by checking a tightened Fastener with a torque wrench.
2. Increase or decrease the torque by rotating the Spring Adjusting Ring. Rotating the Ring clockwise to a higher number on the torque Scale increase torque output while rotating the Ring counterclockwise to a lower number decreases the torque output.
3. Check the adjustment with a torque wrench. A number of factors will affect torque output from one job to another. Final torque adjustment should be made at the job through a of series of gradual increase. Always start below the desired torque and work upward.
4. Adjust the bit torque by changing the driving in length of the adjust ring at the end.
5. The relationship between torque scale and bit torque is as shown Ring, in the torque diagram. The figures of torque scale do not indicate bit torque values. However, the clamping torque of screw itself is different form type, size, material of the screw and the material of its mating part. Use it as standard to obtain an appropriate clamping torque.
6. The (Return torque method) in which once-clamped screw is returned with torque wrench or the like is available as one of torque control methods however, note that the measured values by the return torque method generally appear in 10%~30% lower than the actually clamping torque.
7. The torque checker measures the torque of screwdriver. The clamping torque of screw itself is different from the clamped conditions. Understand the correlation between clamping torque values and the torque checker values perform the torque control properly.

CAUTION

1. Also in reverse rotation, the clutch is turned off in such manner as in normal rotation, stopping the motor running. Accordingly, when the screw tightened at a large torque, set it to a higher torque scale.
2. The number from zero to eight on the Torque Scale are reference number only and not an indication of actual torque output.

6. Accessories

1.BIT Type ： No. 00 · · · Bit use in dia 1.3-1.8mm screw
No. 0 · · · · · Bit use in dia 1.6-2.0mm screw
No. 1 · · · · · Bit use in dia 2.0-2.6mm screw
No. 2 · · · · · Bit use in dia 3.0-4.0mm screw

BSD-3000L	with BIT	M3	Ø4×40	00#&0#&1#	1 Pcs. Each
BSD-3200L	with BIT	M3	Ø4×40	0#&1#	1 Pcs. Each
BSD-3300L	with BIT	M3	Ø4×40	1#&2#	1 Pcs. Each
BSD-6200L	with BIT			1#&2#	1 Pcs. Each
BSD-6600L	with BIT			1#&2#	1 Pcs. Each
BSD-6600LF	with BIT			1#&2#	1 Pcs. Each
BSD-8000L	with BIT			1#&2#	1 Pcs. Each
BSD-8200L	with BIT			1#&2#	1 Pcs. Each
BSD-8800L	with BIT			2#	2 Pcs.
BSD-8800LF	with BIT			1#&2#	1 Pcs. Each

2.Carbon Brush :2 Pcs, Those 2 Pcs brush are spare parts.

3.Suspension rack and Torque fixing ring acceptable for use with the tool are available from KILEWS catalogue.

7. Servicing

Maintenance and Inspection:

1. The screw driver must be operated in top condition, one day working hour must be not more than eight hours.cording to operating frequency and torque loaded, we suggest adding lubricating oils in clutch per 3-6 months, and kindly contact with distributor when product's maintenance .
2. Please note don't let the motor get over heated, every minute use 10~15 screws to operate.
3. The frequency use of this electric screw driver is over than eight hours a day, still it needs periodically testing and treatment. Every 5-6 months.
4. Inspect tool cords periodically and if damaged, have them repaired by an authorized service facility. Inspect extension cords periodically and replace if damaged.
5. Do not remove any labels. Replace any damaged label.

CAUTION

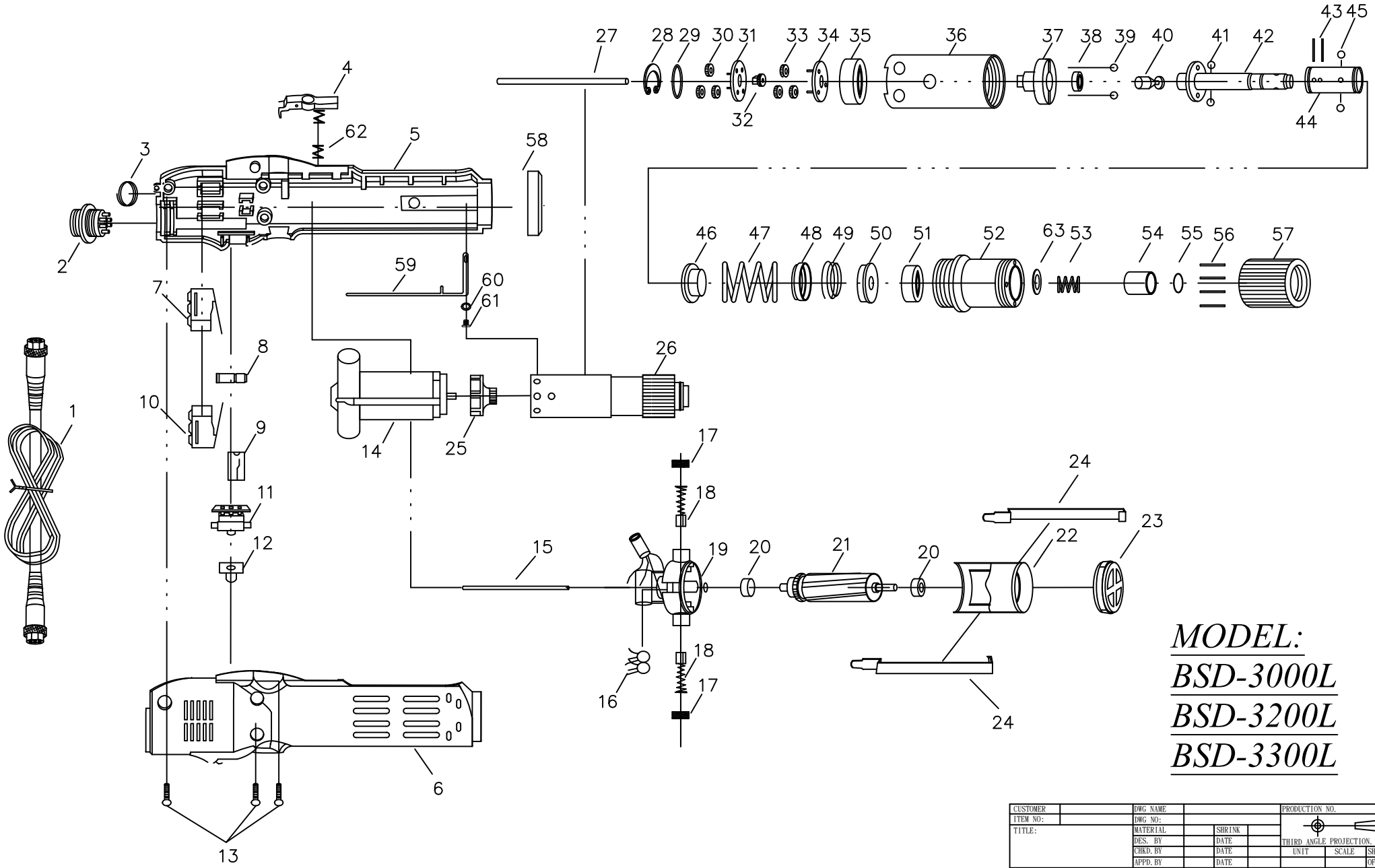
1. The use of other than genuine KILEWS replacement parts may Result in decreased tool performance and increased maintenance, and may invalidate all warranties.
2. All repairs and maintenance of this tool and its word must be performed by an authorized service center.
3. KILEWS is not responsible for customer modification of tools for applications on which KILEWS was not consulted.
4.
5.
6. Repairs should by made only by authorized, trained personnel. Consult your nearest KILEWS authorized service center.
7. It is the responsibility of the employer to place the information in this manual into the hands of the operator.

DO NOT ATTEMPT TO REPAIR THIS ELECTRIC SCREWDRIVER

CAUTION

SAVE THESE INSTRUCTIONS
DO NOT DESTROY

Our company reserves the right to modify the product without prior notice.



MODEL:

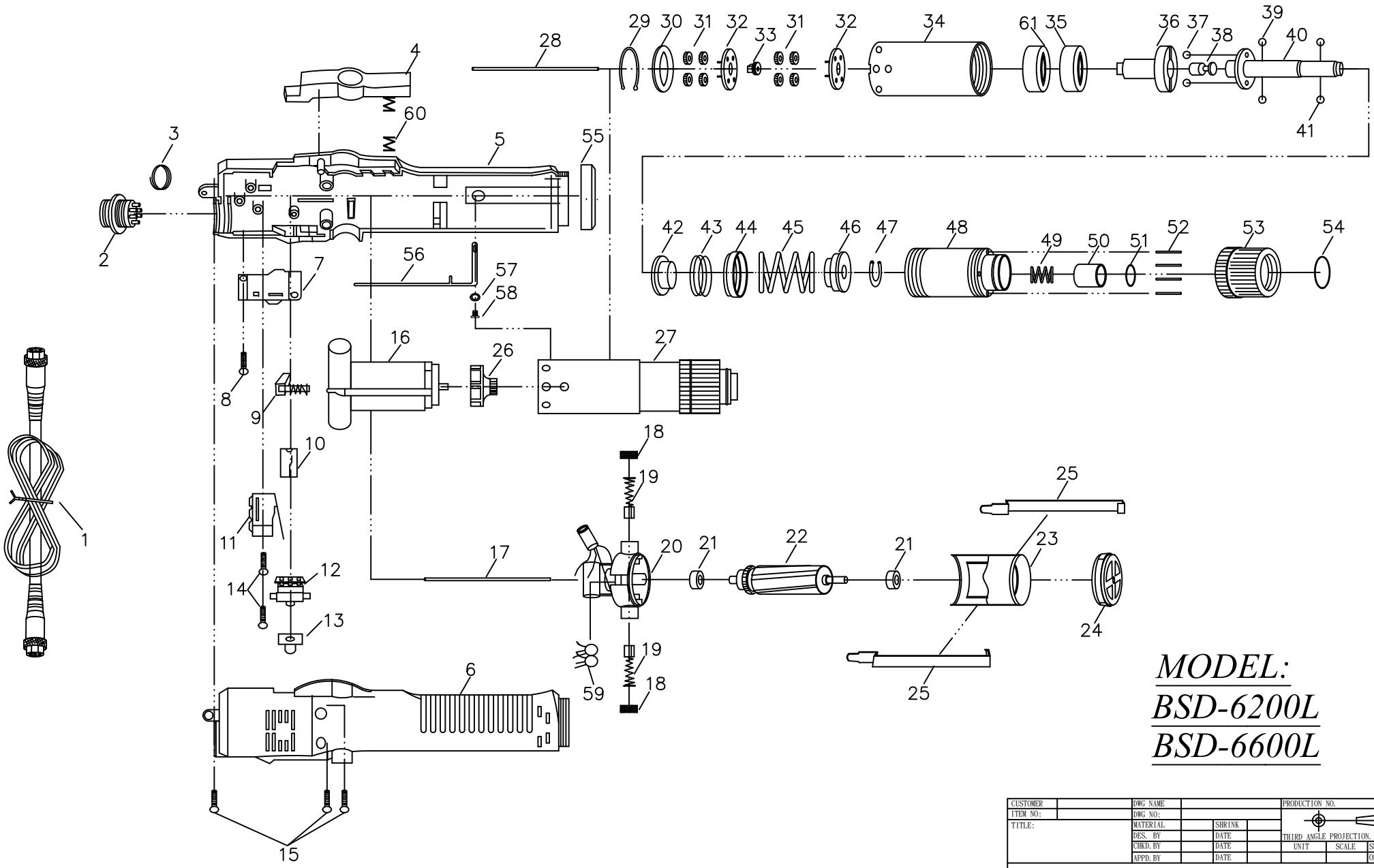
BSD-3000L

BSD-3200L

BSD-3300L

CUSTOMER		DWG NAME			PRODUCTION NO.		
ITEM NO:		DWG NO:					
TITLE:		MATERIAL		SHRINK			
		DES. BY		DATE	THIRD ANGLE PROJECTION.		
		CHKD. BY		DATE	UNIT	SCALE	SHT NO.
		APPD. BY		DATE			OF SHTS.

NO	PARTS NO	PARTS NAME-E	Q'ty	NO	PARTS NO	PARTS NAME-E	Q'ty
1	AA50005A-D6P-2N	CORD ASSEMBLY 2M	1	31	GG28211	GEAR SEAT"3000L&3200L"	1
2	PZ50160	CONNECTOR ASS'Y	1		G21507	GEAR SEAT FOR "3300L"	1
3	CJ20011	SUSPENSION RING	1	32	M11308	CENTRAL GEAR FOR "3000L&3200L"	1
4	CC28021	TRIGGER ASSEMBLY	1		G20103	CENTRAL GEAR FOR "3300L"	1
	CC28021-2	TRIGGER ASSEMBLY (ESD)	1	33	GH28191	IDLE GEAR FOR "3000L&3200L"	3
5	CB28001-1	HOUSING-UNDERSIDE	1		GH28191-1	IDLE GEAR FOR "3300L"	3
	CB28001-4	HOUSING-UNDERSIDE (ESD)	1	34	GG28211	GEAR SEAT FOR "3000L&3200L"	1
6	CA28151-1	HOUSING-UPSIDE	1		GG28211-1	GEAR SEAT FOR "3300L"	1
	CA28151-4	HOUSING-UPSIDE (ESD)	1	35	GN28221	MAIN BEARING	1
7	HB50061	START SWITCH	1	36	GA28231-3	GEAR CASE	1
8	CE28051-1	PUSH ROD	1	37	GC28241-2	CAM FOR"3000L"	1
9	CE28061	FIXTURE	1		GC28241-1	CAM FOR "3200L"	1
10	H10201	SHUT OFF SWITCH	1		GC28241	CAM FOR "3300L"	1
11	HA28071-4	CHANGEOVER SWITCH	1	38	GN28251	BALL BEARING	1
12	CI60216	CHANGEOVER SWITCH CAP FOR "3000L"	1	39	GP30371	STEEL BALLS "3.15mm"	2
	CI60211	CHANGEOVER SWITCH CAP FOR "3200L"	1	40	GU28261-1	STOP PILOT	1
	CI60212	CHANGEOVER SWITCH CAP FOR "3300L"	1	41	GP21291A	STELL BALLS FOR 3mm	2
13	CH20102	SCREW	3	42	GD28281C-1	SHAFT FOR "3000LC/3200LC/3300LC" TYPE	1
14	MO28081-0	MOTOR ASSEMBLY FOR "3000L"	1		GD28281B	SHAFT FOR "B" TYPE	1
	MO28081-2	MOTOR ASSEMBLY FOR "3200L"	1	43	G21203-1	PINS FOR GT28282B	2
	MO28081-1	MOTOR ASSEMBLY FOR "3300L"	1	44	GT28282B	BIT HOLDER(B:6.35)	2
15	MI30511-2	PILOT ROD	1	45	GP20331	BIT PILOT FOR "C"TYPE 2mm	1
16	EB33610-2	CERAMICS CAPACITOR	1		GP21291B	BIT PILOT FOR "B"TYPE 2.5mm	2
17	MD20151	BRUSH CAP	2	46	GF28291	WARING PLATE TYPE	1
18	MC50161-1	CAPBON BRUSH	2	47	GE28321	WARING SPRING FOR "3000L/3200L"	1
19	ML28131	MOTOR TOP COVER	1		GE28323-3	WARING SPRING FOR "3300L"	1
20	ME28121	BALL BEARING	2	48	GO28241	SPRING CUP	1
21	MH28161-1	ARMATURE FOR "3000L"	1	49	GO28251	TRIANGLE SPRING -3000L 3200L	1
	MH28161-2	ARMATURE FOR "3200L"	1		GO28251-3	TRIANGLE SPRING -3300L	1
	MH28161-7	ARMATURE FOR "3300L"	1	50	GY28331	WARING SPRING SEAT	1
22	MJ28171-1	MOTOR YOKE ASSEMBLY FOR "3000L"	1	51	GN28341	BALL BEARING	1
	MJ28171-2	MOTOR YOKE ASSEMBLY "3200L&3300L"	1	52	GB21332-1F	CLUTCH CASE	2
23	MB28141	MOTOR END COVER	1	53	GO28361-2	BIT SPRING FOR "C"TYPE	1
24	MA33621B	ASSEMBLING SPRING	2		GO28361-1	BIT SPRING FOR "B"TYPE	1
25	MK28091	FAN FOR 3000L& 3200L	1	54	GJ28371	BIT SLEEVE FOR "C"TYPE	1
	MK28091-1	FAN FOR 3300L	1		GJ3046B	BIT SLEEVE FOR "B"TYPE	1
26	GZ28111-1C	CLUTCH ASSEMBLY FOR "3000LC"	1	55	GQ28411	C-RING FOR "C"TYPE	1
	GZ28111-1B	CLUTCH ASSEMBLY FOR "3000LB"	1		GQ21361	C-RING FOR "B"TYPE	1
	GZ28111-2C	CLUTCH ASSEMBLY FOR "3200LC"	1	56	GL28381	TORQUE ADJUSTING PINS	4
	GZ28111-2B	CLUTCH ASSEMBLY FOR "3200LB"	1	57	GM28391	TORQUE ADJUSTING RING	1
	GZ28111-3C	CLUTCH ASSEMBLY FOR "3300LC"	1	58	CD28041	COUPLER	1
	GZ28111-3B	CLUTCH ASSEMBLY FOR "3300LB"	1		CD28041-1	COUPLER (ESD)	1
27	MI28101-2	PILOT ROD	1	59	CH50671-3	GROUNDING MEANS	1
28	GK28181-1	"C" RING	1	60	CH20102-18	WASHER	1
29	GI28441	IRON WASHER	1	61	CH30192	SCREW	1
30	GH28191	IDLE GEAR FOR "3000L&3200L"	3	62	CK28031	TRIGGER SPRING	1
	GH28191-1	IDLE GEAR FOR "3300L"	3	63	G21436-1	WASHER FOR "C"TYPE	1



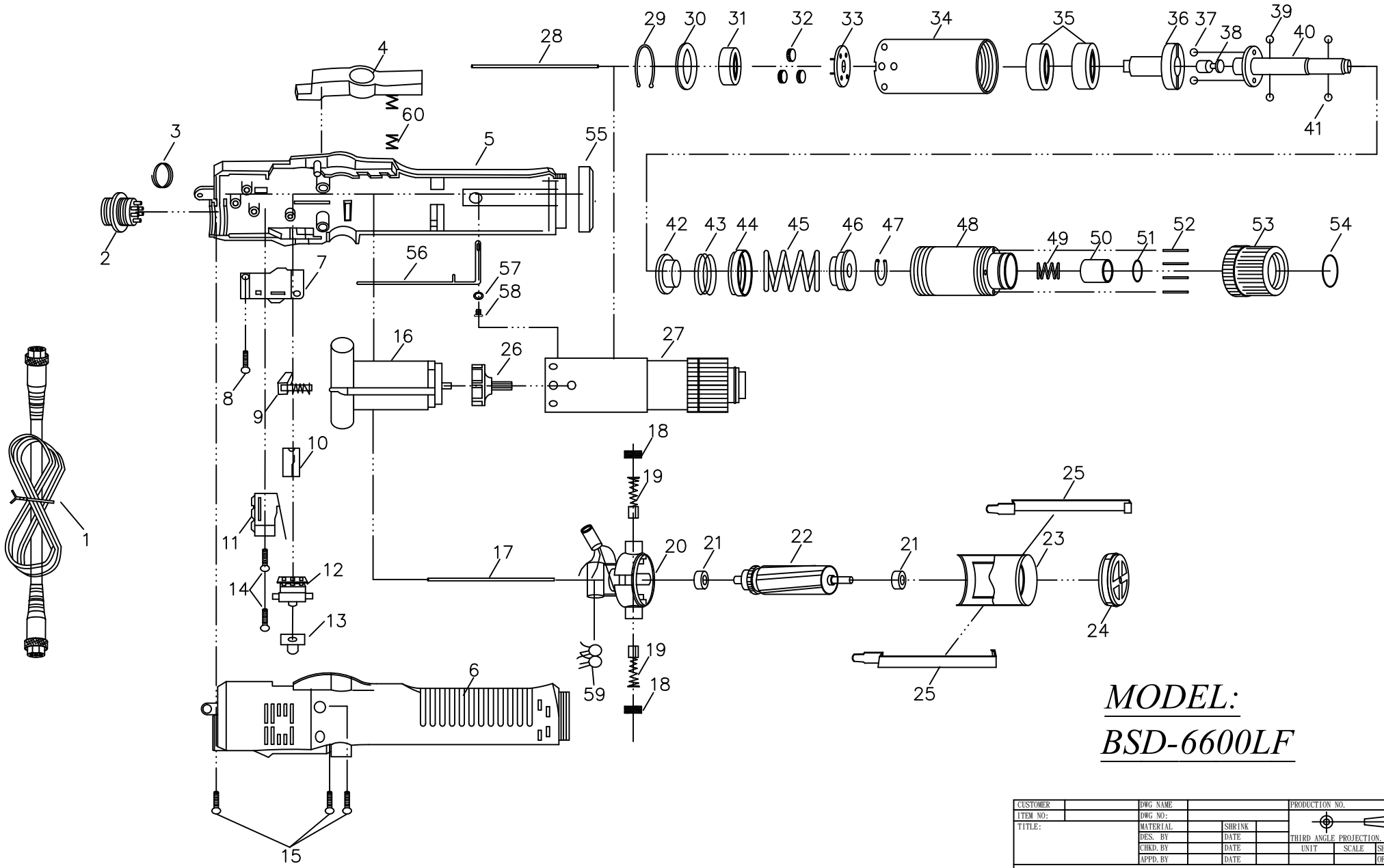
MODEL:

BSD-6200L

BSD-6600L

CUSTOMER		DWG NAME			PRODUCTION NO.		
ITEM NO:		DWG NO:					
TITLE:		MATERIAL		SHRINK	THIRD ANGLE PROJECTION.		
		DES. BY		DATE			
		CHKD. BY		DATE	UNIT	SCALE	SHT NO.
		APPD. BY		DATE			OF SHTS.

NO	PARTS NO	PARTS NAME-E	Q'ty	NO	PARTS NO	PARTS NAME-E	Q'ty
1	AA50005A-D6P-2N	CORD ASSEMBLY 2M	1	31	GH20241	IDLE GEAR	8
2	PZ50160	CONNECTOR	1	32	GG20271	GEAR SEAT	2
3	CJ20011	SUSPENSION RING	1	33	G20101	CENTRAL GEAR	1
4	CC50011	TRIGGER ASSEMBLY	1	34	GA30311-7	GEAR CASE	1
	CC50011-2	TRIGGER ASSEMBLY (ESD)	1	35	GN30321	MAIN BEARING	1
5	CB50031-1	HOUSUNG-UNDERSIDE	1	36	GC30341	CAM	1
	CB50031-4	HOUSUNG-UNDERSIDE (ESD)	1	37	GP30351	STEEL BALLS	2
6	CA50221-1	HOUSUNG-UPSIDE	1	38	GU30361	STOP PILOT	1
	CA50221-4	HOUSUNG-UPSIDE (ESD)	1	39	GP30371	STELL BALLS 3.15mm (A,C,D,AD)	2
7	HB50073	START SWITCH	1		GP30351	STELL BALLS 4mm (B)	2
8	CH30003F	SCREW	1	40	GD30381A	SHAFT FOR "A" TYPE	1
9	CE50121-1	PUSH ROD	1		GD30381B	SHAFT FOR "B" TYPE	1
10	CE50151	FIXTURE	1		GD30381C	SHAFT FOR "C" TYPE	1
11	H10201	SHUT OFF SWITCH	1		GD30381D	SHAFT FOR "D" TYPE	1
12	HA50091F	CHANGEOVER SWITCH	1		GD30383AD	SHAFT FOR "AD" TYPE	1
13	CI50211	CHANGEOVER SWITCH CAP FOR"6200L"	1	41	GP20331	STEEL BALLS FOR "A,D,AD" TYPE(2mm)	2
	CI50211-1	CHANGEOVER SWITCH CAP FOR"6600L"	1		GP21291B	STEEL BALLS FOR "B,C" TYPE(2.5mm)	2
14	CH90151-1	SCREW	2	42	GF30401	WARING PLATE FOR "A,C,D,AD" TYPE	1
15	CH20102	SCREW	3		GF30401B	WARING PLATE FOR "B" TYPE	1
16	MO50111	MOTOR ASSEMBLY "6200L"	1	43	GO30541-3	SPRING FOR "6200L"	1
	MO50111-1	MOTOR ASSEMBLY "6600L"	1		GO30541-1	SPRING FOR "6600L"	1
17	MI30511-3	PILOT ROD	1	44	GO30531	SPRING CAP	1
18	MD20151	BRUSH CAP	2	45	GE50411-1	WARING SPRING FOR "6200LA,C,D,AD"	1
19	MC71411-1	CAPBON BRUSH	2		GE50411-2	WARING SPRING FOR "6200LB"	1
20	ML50571	MOTOR TOP COVER	1		GE30413-16	WARING SPRING FOR "6600LA,B,C,D,AD"	1
21	ME20181-1	BALL BEARING	2	46	GY30421	WARING SPRING BASE FOR "A,C,D,AD" TYPE	1
22	MH50601	ARMATURE FOR "6200L"	1		GY30421B	WARING SPRING BASE FOR "B" TYPE	1
	MH50601-1	ARMATURE FOR "6600L"	1	47	GK20231B	"C"-RING FOR GY30421B (LB)	1
23	MJ50631	MOTOR YOKE ASSEMBLY "6200L"	1	48	GB30441-12AF	CLUTCH CASE (A,C,D,AD)	1
	MJ30631	MOTOR YOKE ASSEMBLY "6600L"	1		GB30441-1A	CLUTCH CASE (B)	1
24	MB20221	MOTOR END COVER	1	49	GO30452	BIT SPRING FOR "A,C,D,AD" TYPE	1
25	MA20211B	ASSEMBLING SPRING	2		GO20391B	BIT SPRING FOR "B" TYPE	1
26	MK20131-1	FAN	1	50	GJ30461	BIT SLEEVE FOR "A,C,D,AD" TYPE	1
27	GZ30071-2A	CLUTCH ASSEMBLY FOR "6200LA"	1		GJ3046B	BIT SLEEVE FOR "B" TYPE	1
	GZ30071-2B	CLUTCH ASSEMBLY FOR "6200LB"	1	51	GQ30471	"C" RING (A,C,D,AD)	1
	GZ30071-2C	CLUTCH ASSEMBLY FOR "6200LC"	1		GQ21361	"C" RING (B)	1
	GZ30071-2D	CLUTCH ASSEMBLY FOR "6200LD"	1	52	GL30481-5	TORQUE ADJUST PIN	4
	GZ30071-2AD	CLUTCH ASSEMBLY FOR "6200LAD"	1	53	GM30491	TORQUE ADJUST RING	1
	GZ30071-3A	CLUTCH ASSEMBLY FOR "6600LA"	1	54	GS30501	"C" RING FOR GM30491	1
	GZ30071-3B	CLUTCH ASSEMBLY FOR "6600LB"	1	55	CD20111	COUPLER	1
	GZ30071-3C	CLUTCH ASSEMBLY FOR "6600LC"	1		CD20111-3	COUPLER ESD	1
	GZ30071-3D	CLUTCH ASSEMBLY FOR "6600LD"	1	56	CH50671-4	GROUNDING MEANS	1
	GZ30071-3AD	CLUTCH ASSEMBLY FOR "6600LAD"	1	57	CH20102-18	WASHER	1
28	MI30241-2	PILOT ROD FOR"A,C,D,AD"TYPE	1	58	CH30192	SCREW	1
	MI30241-3	PILOT ROD FOR"B"TYPE	1	59	EB33610-2	CERAMICS CAPACITOR	1
29	GK20231	"C" RING	1	60	CK28031-1	TRIGGER SPRING	1
30	GI20251-1	IRON WASHER	1	61	GN30435	MAIN BEARING	1

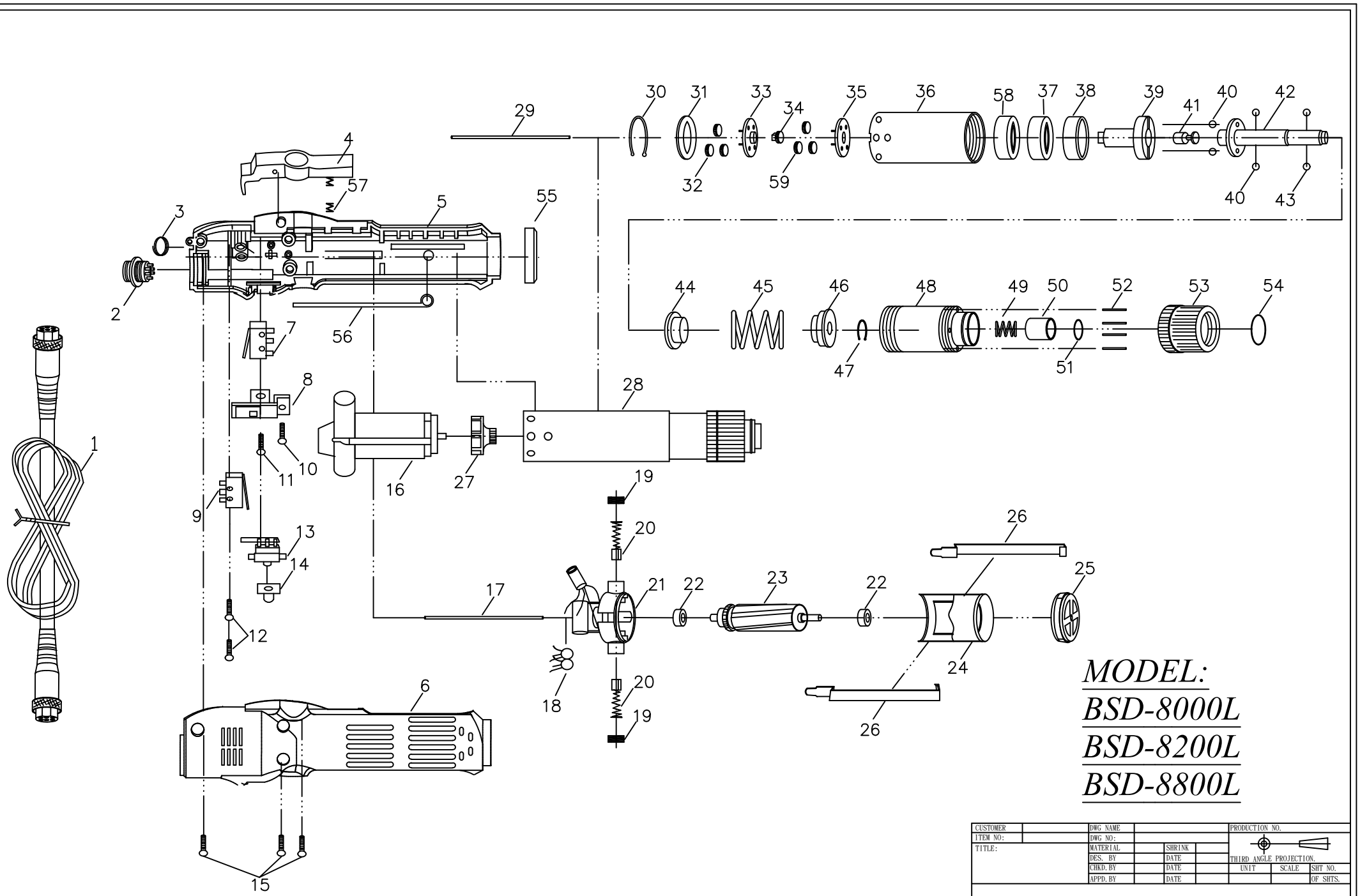


MODEL:

BSD-6600LF

CUSTOMER		DWG NAME				PRODUCTION NO.	
ITEM NO:		DWG NO:					
TITLE:		MATERIAL		SHRINK		THIRD ANGLE PROJECTION	
		DES. BY		DATE			
		CHKD. BY		DATE		UNIT	SCALE	SHT NO.
		APPD. BY		DATE				OF SHTS.

NO	PARTS NO	PARTS NAME-E	Q'ty	NO	PARTS NO	PARTS NAME-E	Q'ty
1	AA50005A-D6P-2N	CORD ASSEMBLY 2M	1	34	GA30311-8	GEAR CASE	1
2	PZ50160	CONNECTOR	1	35	GN30321	MAIN BEARING	2
3	CJ20011	SUSPENSION RING	1	36	GC30341	CAM	1
4	CC50011	TRIGGER ASSEMBLY	1	37	GP30351	STEEL BALLS	2
	CC50011-2	TRIGGER ASSEMBLY (ESD)	1	38	GU30361	STOP PILOT	1
5	CB50031-1	HOUSUNG-UNDERSIDE	1	39	GP30371	STELL BALLS 3.15mm (A,C,D,AD)	2
	CB50031-4	HOUSUNG-UNDERSIDE (ESD)	1		GP30351	STELL BALLS 4mm (B)	2
6	CA50221-1	HOUSUNG-UPSIDE	1	40	GD30381A	SHAFT FOR "A" TYPE	1
	CA50221-4	HOUSUNG-UPSIDE (ESD)	1		GD30381B	SHAFT FOR "B" TYPE	1
7	HB50073	START SWITCH	1		GD30381C	SHAFT FOR "C" TYPE	1
8	CH30003F	SCREW	1		GD30381D	SHAFT FOR "D" TYPE	1
9	CE50121-1	PUSH ROD	1		GD30383AD	SHAFT FOR "AD" TYPE	1
10	CE50151	FIXTURE	1	41	GP20331	STEEL BALLS FOR "A,D,AD" TYPE(2mm)	2
11	H10201	SHUT OFF SWITCH	1		GP21291B	STEEL BALLS FOR "B,C" TYPE(2.5mm)	2
12	HA50091F	CHANGEOVER SWITCH	1	42	GF30401	WARING PLATE FOR "A,C,D,AD" TYPE	1
13	CI50211-1	CHANGEOVER SWITCH CAP FOR"6600LF"	1		GF30401B	WARING PLATE FOR "B" TYPE	1
14	CH90151-1	SCREW	2	43	GO30541	SPRING	1
15	CH20102	SCREW	3	44	GO30531	SPRING CAP	1
16	MO50111-2	MOTOR ASSEMBLY	1	45	GE30411-9	WARING SPRING FOR "6600LFA,C,D,AD"	1
17	MI30511-3	PILOT ROD	1		GE30411-14	WARING SPRING FOR "6600LFB"	1
18	MD20151	BRUSH CAP	2	46	GY30421	WARING SPRING BASE FOR "A,C,D,AD" TYPE	1
19	MC50161-1	CAPBON BRUSH	2		GY30421B	WARING SPRING BASE FOR "B" TYPE	1
20	ML50571-3	MOTOR TOP COVER	1	47	GK20231B	"C"-RING FOR GY30421B (LB)	1
21	ME21481	BALL BEARING	2	48	GB30441-12AF	CLUTCH CASE (A,C,D,AD)	1
22	MH50601-5	ARMATURE	1		GB30441-1A	CLUTCH CASE (B)	1
23	MJ33631F	MOTOR YOKE ASSEMBLY	1	49	GO30452	BIT SPRING FOR "A,C,D,AD" TYPE	1
24	MB20221-1	MOTOR END COVER	1		GO20391B	BIT SPRING FOR "B" TYPE	1
25	MA33621B	ASSEMBLING SPRING	2	50	GJ30461	BIT SLEEVE FOR "A,C,D,AD" TYPE	1
26	MK33091LF	FAN	1		GJ3046B	BIT SLEEVE FOR "B" TYPE	1
27	GZ50071-3AF	CLUTCH ASSEMBLY FOR 6600LFA	1	51	GQ30471	"C" RING (A,C,D,AD)	1
	GZ50071-3BF	CLUTCH ASSEMBLY FOR 6600LFB	1		GQ21361	"C" RING (B)	1
	GZ50071-3CF	CLUTCH ASSEMBLY FOR 6600LFC	1	52	GL30481-5	TORQUE ADJUST PIN	4
	GZ50071-3DF	CLUTCH ASSEMBLY FOR 6600LFD	1	53	GM30491	TORQUE ADJUST RING	1
	GZ50073-4ADF	CLUTCH ASSEMBLY FOR 6600LFAD	1	54	GS30501	"C" RING FOR GM30491	1
28	MI30241-2	PILOT ROD FOR"A,C,D,AD"TYPE	1	55	CD20111	COUPLER	1
	MI30241-3	PILOT ROD FOR"B"TYPE	1		CD20111-3	COUPLER(ESD)	1
29	GK20231	"C" RING	1	56	CH50671-4	GROUNDING MEANS	1
30	GI20251-1	IRON WASHER	1	57	CH20102-18	WASHER	1
31	G21302	SPACER	1	58	CH30192	SCREW	1
32	GH20241-1	IDLE GEAR	3	59	EB33610-2	CERAMICS CAPACITOR	1
33	GG20271-1	GEAR SEAT	1	60	CK28031-1	TRIGGER SPRING	1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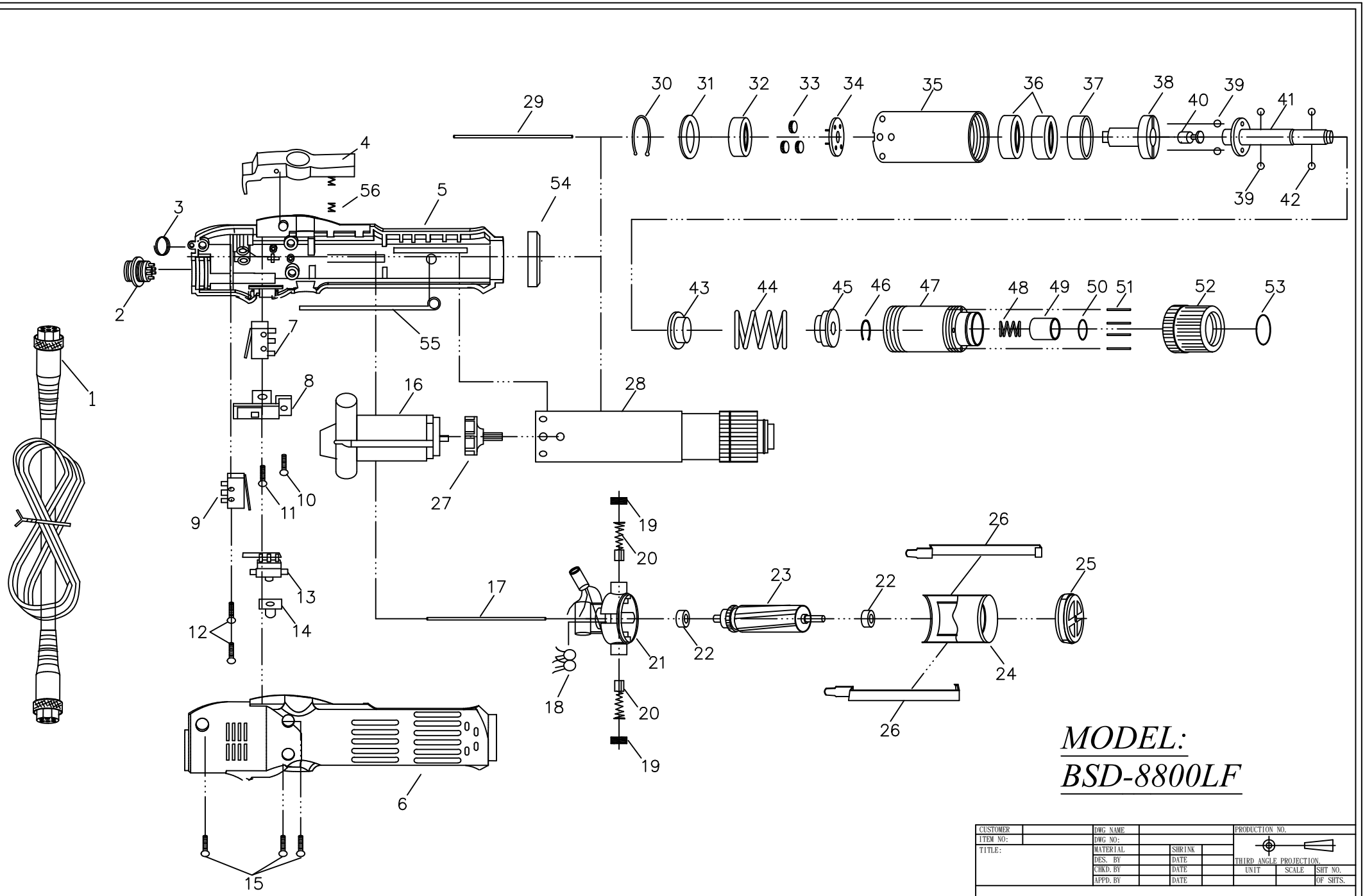
BSD-8000L
BSD-8200L
BSD-8800L
CUSTOMER
ITEM NO:
TITLE:
DWG NAME
DWG NO:
MATERIAL
DES. BY
CHKD. BY
APPD. BY
SHRINK
DATE
PRODUCTION NO.
THIRD ANGLE PROJECTION.
UNIT
SCALE
SHT NO.
OF SHTS.

NO	PARTS NO	PARTS NAME-E	Q'ty	NO	PARTS NO	PARTS NAME-E	Q'ty
1	AA50005A-D6P-2N	CORD ASSEMBLY 2M	1	31	GI21191	IRON WASHER	1
2	PZ50160	CONNECTOR	1	32	GH20241	IDLE GEAR FOR "8000L"	3
3	CJ20011	SUSPENSION RING	1		GH91232	IDLE GEAR FOR "8200L"	3
4	CC21011-3	TRIGGER ASSEMBLY	1		GH92231	IDLE GEAR FOR "8800L"	4
	CC21011-6	TRIGGER ASSEMBLY -ESD	1	33	GG21231	GEAR SEAT FOR "8000L"	1
5	CB71031-1	HOUSUNG-UNDERSIDE	1		GG91242-1	GEAR SEAT FOR "8200L"	1
	CB71031-3	HOUSUNG-UNDERSIDE (ESD)	1		GG92241-1	GEAR SEAT FOR "8800L"	1
6	CA71201-1	HOUSUNG-UPSIDE	1	34	G20102	CENTRAL GEAR FOR "8000L"	1
	CA71201-3	HOUSUNG-UPSIDE (ESD)	1	35	GG21231	GEAR SEAT FOR "8000L"	1
7	HB91061	SHUT OFF SWITCH	1		GG91272-1	GEAR SEAT FOR "8200L"	1
8	CE90101-1	SWITCH BASE	1		GG92271-1	GEAR SEAT FOR "8800L"	1
9	HB50061	START SWITCH	1	36	GA21241	GEAR CASE FOR "8000L"	1
10	CH90121	SCREW	1		GA35241	GEAR CASE FOR "8200L&8800L"	1
11	CH90131	SCREW	1	37	GN21251	MAIN BEARING	1
12	CH90151-1	SCREW	2	38	GW21531	IRON RING	1
13	HA28071-4	CHANGEOVER SWITCH	1	39	GC31321A	CAM	1
14	CI60213	CHANGEOVER SWITCH CAP-8000L	1	40	GP30351	STELL BALLS(4mm)	4
	CI60214	CHANGEOVER SWITCH CAP-8200L	1	41	GU30361	STOP PILOT-LA	1
	CI60212	CHANGEOVER SWITCH CAP-8800L	1		GU30371	STOP PILOT-LB	1
15	CH20102	SCREW	3	42	GD31351A-1	SHAFT FOR "A"TYPE	1
16	MO71051	MOTOR ASSEMBLY FOR 8000L	1		GD31353B-2	SHAFT FOR "B"TYPE	1
	MO71051-3	MOTOR ASSEMBLY FOR 8200L	1		GD31351AD-1	SHAFT FOR "AD"TYPE	1
	MO71051-4	MOTOR ASSEMBLY FOR 8800L	1	43	GP21291A	BIT PILOT FOR HEX 5.0mm	2
17	MI31611-1	PILOT ROD	1		GP21291B	BIT PILOT FOR HEX 6.35mm	2
18	EB33610-2	CERAMICS CAPACITOR	1	44	GF31371	WARING PLATE-HEX 5.0mm	1
19	MD20151	BRUSH CAP	2		GF31372	WARING PLATE-HEX 6.35mm	1
20	MC71411-1	CARBON BRUSH	2	45	GE90361-14	WARING SPRING FOR "8000L"	1
21	ML70531	MOTOR TOP COVER	1		GE90361-15	WARING SPRING FOR "8200L"	1
22	ME21481	BALL BEARING	2		GE90361-16	WARING SPRING FOR "8800L"	1
23	MH70571-1	ARMATURE	1	46	GY21321	WARING SPRING BASE-LB	1
24	MJ90601	MOTOR YOKE ASSEMBLY	1		GY31391	WARING SPRING BASE-LA	1
25	MB21521A	MOTOR END COVER	1	47	GK20231B	"C"RING	1
26	MA21491B	ASSEMBLING SPRING	2	48	GB21331-1	CLUTCH CASE	1
27	MK21111	FAN FOR "8000L"	1	49	GO21341	BIT SPRING	1
	MK91091	FAN FOR "8200L"	1	50	GJ21351	BIT SLEEVE	1
	MK92091	FAN FOR "8800L"	1	51	GQ21361	"C"RING	1
28	GZ71091A	CLUTCH ASSEMBLY FOR "8000A"	1	52	GL21371	TORQUE ADJUSTING PINS	4
	GZ71091B	CLUTCH ASSEMBLY FOR "8000B"	1	53	GM21381	TORQUE ADJUSTING RING	1
	GZ71091AD	CLUTCH ASSEMBLY FOR "8000AD"	1	54	GS21391	"C"RING	1
	GZ71091-2A	CLUTCH ASSEMBLY FOR "8200A"	1	55	CD21031	COUPLER	1
	GZ71091-2B	CLUTCH ASSEMBLY FOR "8200B"	1		CD21031-1	COUPLER-ESD	1
	GZ71091-2AD	CLUTCH ASSEMBLY FOR "8200AD"	1	56	CH30671-2	GROUNDING MEANS	1
	GZ71091-8A	CLUTCH ASSEMBLY FOR "8800A"	1	57	CK28031-1	TRIGGER SPRING	1
	GZ71091-8B	CLUTCH ASSEMBLY FOR "8800B"	1	58	GN30442	MAIN BEARING	1
	GZ71091-3AD	CLUTCH ASSEMBLY FOR "8800AD"	1	59	GH20241	IDLE GEAR FOR "8000L"	3
29	MI31221-1	PILOT ROD	1		GH91232-1	IDLE GEAR FOR "8200L"	3
30	GK21181	"C"RING	1		GH92231-1	IDLE GEAR FOR "8800L"	4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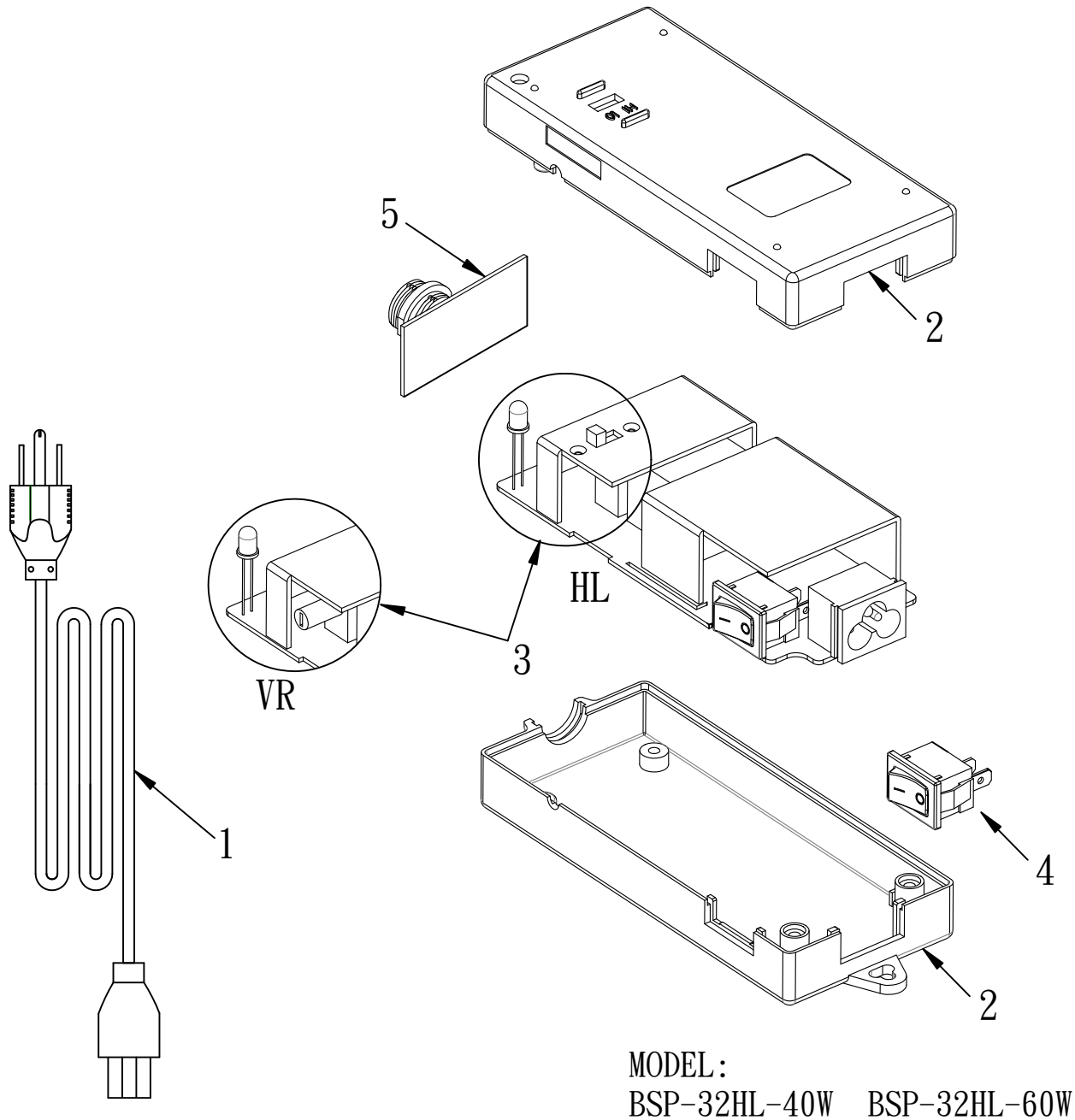
MODEL:
BSD-8800LF
CUSTOMER
ITEM NO:
TITLE:
DWG NAME
DWG NO:
MATERIAL
DES. BY
CHKD. BY
APPD. BY
SHRINK
DATE
PRODUCTION NO.
THIRD ANGLE PROJECTION.
UNIT
SCALE
SHT NO.
OF SHTS.

NO	PARTS NO	PARTS NAME-E	Q'ty	NO	PARTS NO	PARTS NAME-E	Q'ty
1	AA50005A-D6P-2N	CORD ASSEMBLY 2M	1	30	GK21181	"C"RING	1
2	PZ50160	CONNECTOR	1	31	GI21191	IRON WASHER	1
3	CJ20011	SUSPENSION RING	1	32	G21301	SPACER	1
4	CC21011-3	TRIGGER ASSEMBLY	1	33	GH21221-1	IDLE GEAR	3
	CC21011-6	TRIGGER ASSEMBLY -ESD	1	34	GG21231-1	GEAR SEAT	1
5	CB71031-1	HOUSUNG-UNDERSIDE	1	35	GA21241	GEAR CASE	1
	CB71031-3	HOUSUNG-UNDERSIDE (ESD)	1	36	GN21251	MAIN BEARING	2
6	CA71201-1	HOUSUNG-UPSIDE	1	37	GW21531	IRON RING	1
	CA71201-3	HOUSUNG-UPSIDE (ESD)	1	38	GC31321A	CAM	1
7	HB91061	SHUT OFF SWITCH	1	39	GP30351	STELL BALLS(4mm)	4
8	CE90101-1	SWITCH BASE	1	40	GU30361	STOP PILOT-LA	1
9	HB50061	START SWITCH	1		GU30371	STOP PILOT-LB	1
10	CH90121	SCREW	1	41	GD31351A-1	SHAFT FOR "A"TYPE	1
11	CH90131	SCREW	1		GD31353B-2	SHAFT FOR "B"TYPE	1
12	CH90151-1	SCREW	2		GD31351AD-1	SHAFT FOR "AD"TYPE	1
13	HA28071-4	CHANGEOVER SWITCH	1	42	GP21291A	BIT PILOT FOR HEX 5.0mm	2
14	CI60212	CHANGEOVER SWITCH CAP-8800LF	1		GP21291B	BIT PILOT FOR HEX 6.35mm	2
15	CH20102	SCREW	3	43	GF31371	WARING PLATE FOR HEX 5.0mm	1
16	MO71051-5	MOTOR ASSEMBLY	1		GF31372	WARING PLATE FOR HEX 6.35mm	1
17	MI31611-1	PILOT ROD	1	44	GE90361-17	WARING SPRING	1
18	EB33610-2	CERAMICS CAPACITOR	1	45	GY21321	WARING SPRING BASE-LB	1
19	MD20151	BRUSH CAP	2		GY31391	WARING SPRING BASE-LA	1
20	MC71411-1	CARBON BRUSH	2	46	GK20231B	"C"RING	1
21	ML70531	MOTOR TOP COVER	1	47	GB21331-1	CLUTCH CASE	1
22	ME21481	BALL BEARING	2	48	GO21341	BIT SPRING	1
23	MH70571-1	ARMATURE	1	49	GJ21351	BIT SLEEVE	1
24	MJ90601	MOTOR YOKE ASSEMBLY	1	50	GQ21361	"C"RING	1
25	MB21521A	MOTOR END COVER	1	51	GL21371	TORQUE ADJUSTING PINS	4
26	MA21491B	ASSEMBLING SPRING	2	52	GM21381	TORQUE ADJUSTING RING	1
27	MK21111PF	FAN	1	53	GS21391	"C"RING	1
28	GZ71091-8AF	CLUTCH ASSEMBLY FOR "8800LAF"	1	54	CD21031	COUPLER	1
	GZ71091-8BF	CLUTCH ASSEMBLY FOR "8800LBF"	1		CD21031-1	COUPLER-ESD	1
	GZ71091-8ADF	CLUTCH ASSEMBLY FOR "8800LADF"	1	55	CH30671-2	GROUNDING MEANS	1
29	MI31221-1	PILOT ROD	1	56	CK28031-1	TRIGGER SPRING	1



MODEL:

BSP-32HL-40W BSP-32HL-60W

BSP-32VR-40W BSP-32VR-60W

NO	PARTS NO	PARTS NAME-E	Q'ty
1	AA60005	CORD NS-26 1.5M-Chinese	1
	AA60005-D	CORD NS-26 1.5M-Australia	1
	AA60005-A	CORD NS-26 1.5M-American	1
	AA60005-E	CORD NS-26 1.5M-Europe	1
	AA60005-I	CORD NS-26 1.5M-India	1
	AA60005-U	CORD NS-26 1.5M-UK	1
2	P11011-3	HOUSING 32V 60W HI/LO	1
	P11012-3	HOUSING 32V 40W HI/LO	1
	P11011-4	HOUSING 32V 60W VR	1
	P11012-4	HOUSING 32V 40W VR	1
3	EG50101-22	PCB-POWER SUPPILY FOR 40W HI/LO	1
	EG50101-22I-CE	PCB-POWER SUPPILY FOR 60W HI/LO	1
	EG50101-22E	PCB-POWER SUPPILY FOR 40W VR	1
	EG50101-22F-CE	PCB-POWER SUPPILY FOR 60W VR	1
4	P11401-7	POWER SWITCH BR-12C-11L	1
5	EG50101-3G-A	PCB	1