SKID STEER LOADER

SERVICE MANUAL

HSL650-7

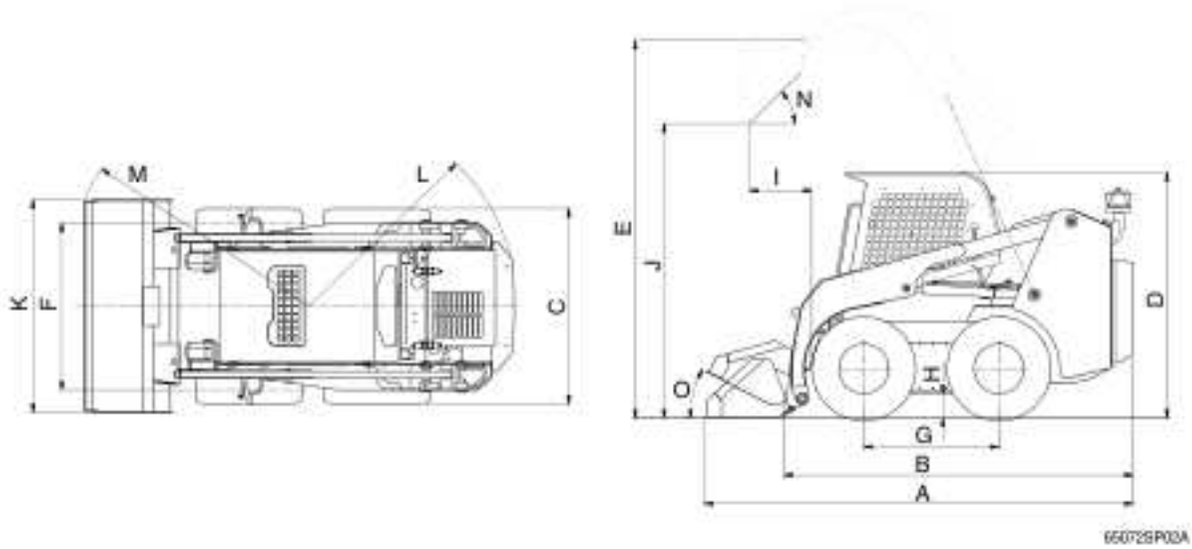
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2. SPECIFICATIONS

· WITH STANDARD BUCKET AND CANOPY



Description		Unit	Specification
Operating weight		kg(lb)	2625(5790)
Bucket capacity	Struck	m³(yd³)	0.25(0.33)
	Heaped		0.31(0.41)
Overall length	A	mm(ft-in)	3270(10' 9")
Overall length(Without bucket)	B		2625(8 ' 7")
Overall width(Except bucket)	C		1515(5' 0")
Overall height	D		1965(6' 5")
Overall height(To hinge pin)	E		2915(9' 7")
Tread	F		1255(4' 1")
Wheelbase	G		990(3' 3")
Ground clearance	H		183(0' 7 ")
Dump reach	I		550(1' 10")
Dump height	J		2240(7' 4")
Bucket width	K		1625(5' 4")
Clearance circle(Rear)	L		1560(5' 1")
Clearance circle(Front / bucket)	M		1920(6' 4")
Dump angle	N	Degree(°)	45
Roll back angle(Carry position)	O		27
Cycle time — Boom	Up	sec	3.7
	Down		2.2
Tilt	Dump		1.8
	Roll back		1.3
Maximum travel speed		km/hr(mph)	11.8(7.4)
Minimum turning radius(Without bucket)		mm(ft-in)	1300(4' 3")
Gradeability		Degree(°)	20

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3. WEIGHT

Item	HSL650-7	
	kg	lb
Frame assembly	760	1680
Canopy	164	362
Engine assembly	184	406
Main pump assembly	66.5	167
Main control valve	19	42
Travel motor	48	106
Boom	252	556
Bucket	180	399
Tire(10 × 16.5-6PR)	40	88
Boom cylinder	43	95
Bucket cylinder	24	53
Seat	9.6	21
Batter	20	44
Rear door assembly	58	128

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4. SPECIFICATION FOR MAJOR COMPONENTS

1) ENGINE

Item	Specification
Model	Kubota V2203M DI
Type	4-cycle diesel engine
Cooling method	Water cooling
Number of cylinders and arrangement	4 cylinders, in-line
Combustion chamber type	Direct injection type
Cylinder bore × stroke	87 × 92.4mm
Piston displacement	2197cc
Compression ratio	20.5 : 1
Rated gross horse power	44.2ps at 2500rpm
Maximum gross torque	14kgf · m at 1600rpm
Engine oil quantity	7.6 ℓ
Dry weight	184kg
High idling speed	2750rpm
Low idling speed	1000 ± 25rpm
Rated fuel consumption	174g/ps · hr
Starting motor	12V-2.0kW
Alternator	12V-45AMP
Battery	1 × 12V × 72Ah(5Hr)

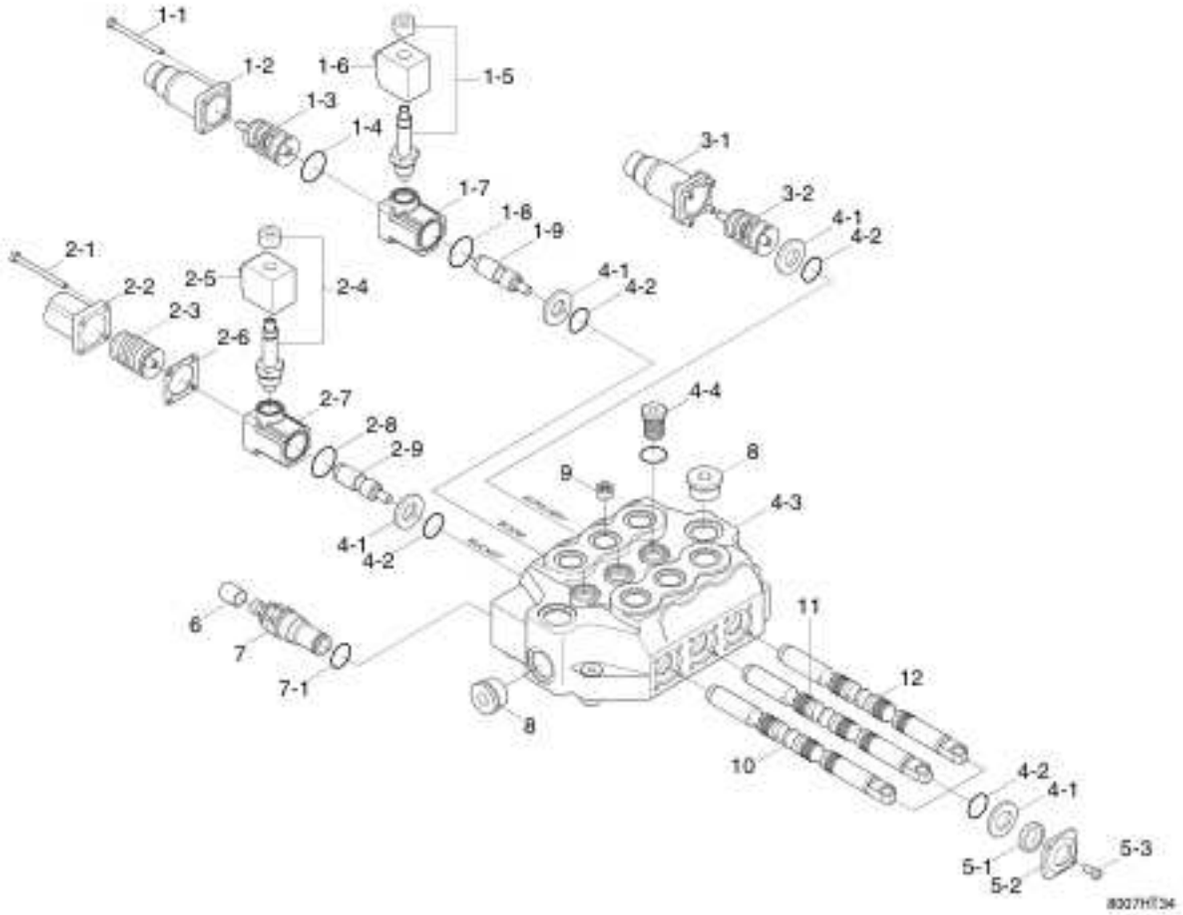
2) MAIN PUMP ASSY

Item	Specification	
	Main pump	Auxiliary pump
Type	Axial tandem piston pump	Fixed gear pump
Capacity	2 × 46cc/rev	28cc/rev
Maximum operation pressure	250kgf/cm²(3560psi)	220kgf/cm²(3130psi)
Rated speed	2400rpm	2400rpm

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3. DISASSEMBLY AND ASSEMBLY

1) BOOM SPOOL



(1) Disassembly

① Remove the end cap(1-2) by removing the four mounting screws(1-1).

② Remove the detent kit(1-3), spacer(1-7), O-ring seal(1-8), joint(1-9), ring(4-1) and O-ring(4-2).

③ Carefully remove the boom spool(11) from the valve body(4-3) and inspect. If spool shows any signs of wear or scoring the entire valve must be replaced.

④ Remove the ring(4-2) and the O-ring(4-1) from the valve body(4-3) using care not to scratch the bore and not to contaminate the bore with foreign.

⑤ Clean and dry all parts with a suitable solvent. Use petroleum based fuel or mineral spirits.

(2) Assembly

① Lubricate the new O-ring(4-2) and ring(4-1) with clean oil. Pinch the lubrificate O-ring and insert the O-ring and the ring into the groove in the front and in the back of the valve. Use care not to cut or nick the O-ring during assembly.

② Insert the boom spool(11) to the body(4-3).

③ Insert the detent kit(1-3) to end cap(1-2). Assemble the joint, O-ring seal, spacer.
Assemble the detent kit(1-3) and tighten torque to 2.5kgf · m(7.38lbf · ft).

④ After assembly check for operation of the spring by pushing down on the detent. This should compress the spring and should return when released. Apply grease(Castro spheerol TN) to the spring and bushs.

⑤ Place the end cap(1-2) over the assembly and install the mounting screws(1-1) and tighten torque to 0.7kgf · m(53.5lbf · ft).

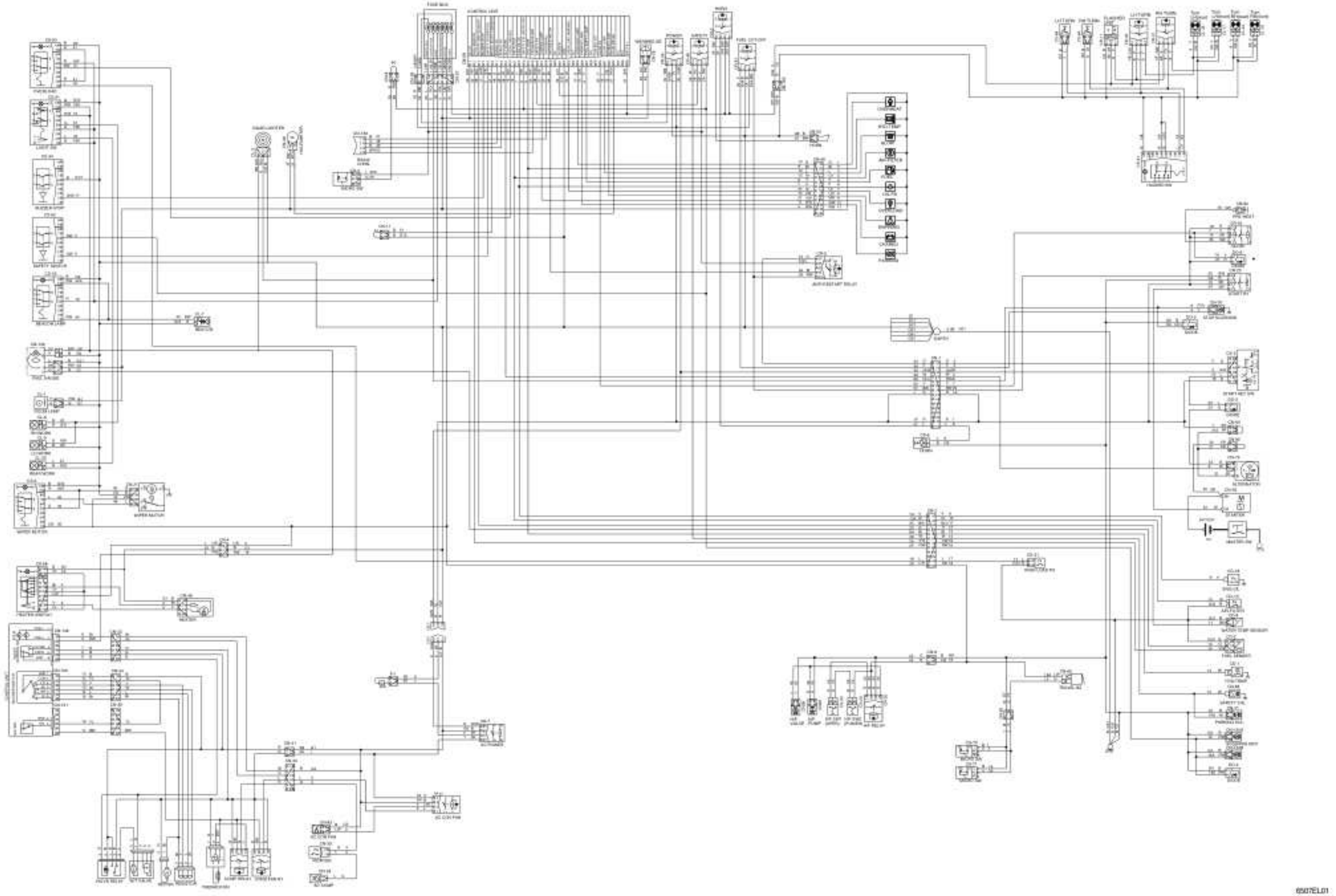
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GROUP 4 CONNECTOR DESTINATION

Connector number	Type	No. of pin	Destination	Connector part No.	
				Female	Male
CN-1	AMP	15	I/conn(Frame harness-Main harness)	2-85262-1	368301-1
CN-2	SWP	12	I/conn(Frame harness-Main harness)	S816-012002	S816-112002
CN-4	FASTEN	15	I/conn(Rops harness-Dash harness)	2-85262-1	368301-1
CN-7	KET	2	I/conn(Main harness-Aircon harness)	MG652934-5	MG642928-5
CN-20	-	2	Horn	35825-0211	-
CN-21	FASTEN	4	Wiper motor	S810-004202	-
CN-26	58-X	2	Warning buzzer	S814-002001	-
CN-36	FASTEN	2	Fuse box	S810-002202	S810-102202
CN-37	SWP	6	Fuse box	S814-006100	S814-106001
CN-45	RING TERM	1	Start motor	S820-308000	-
	-	1	Start motor	171809-2	-
CN-48	-	1	Hour meter	171809-2	-
CN-56	SWP	12	Indicator panel	S816-012002	S816-112002
CN-58	ECONO SEAL III	36	Control unit	344111-1	-
CN-65	SHUR	1	Travel buzzer	S822-014000	-
CN-68	RING TERM	1	Safety solenoid	-	S820-105000
CN-71	SWP	2	Parking solenoid	S814-002001	-
CN-74	RING TERM	1	Alternator	-	S820-306000
	FASTEM	2	Alternator	S810-002202	-
CN-79	SUMITOMO	2	Fuel stop solenoid	6195-0003	-
CN-106	FASTEN	3	Fuel gauge	S810-003202	-
	SHUR	1	Fuel gauge	S822-014000	-
	SHUR	1	Fuel gauge	-	S822-114000
· Switch					
CS-2	AMP	6	Statrt switch	S814-006001	-
CS-3	SWF	10	Wiper switch	SWF593757	-
CS-4	SWP	3	Safety switch	S816-003002	-
CS-5	SHUR	1	Horn switch	S822-014000	S822-114000
CS-21	SWF	10	Light switch	SWF593757	-
CS-34	SWF	10	Buzzer stop switch	SWF593757	-
CS-52	SWF	10	Safety reset switch	SWF593757	-

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GROUP 2 WIRING DIAGRAM



650TEL01

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