PART NO. TONDB-EN-01

HITACHI

Reliable solutions

Technical Manual

Operational Principle

ZW

180-5B

180PL-5B

Wheel Loader

Service Manual consists of the following separate Part No.

Technical Manual (Operational Principle)	: Vol. No.TONDB-EN
Technical Manual (Troubleshooting)	: Vol. No.TTNDB-EN
Workshop Manual	: Vol. No.WNDB-EN

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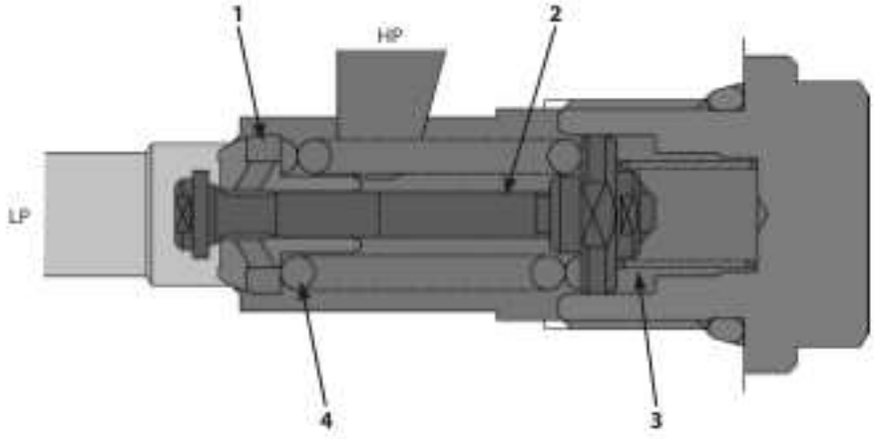
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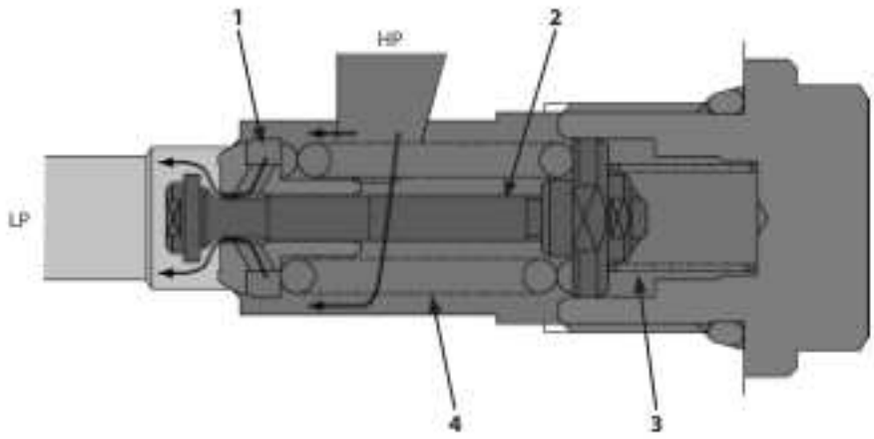
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Normal Operation:



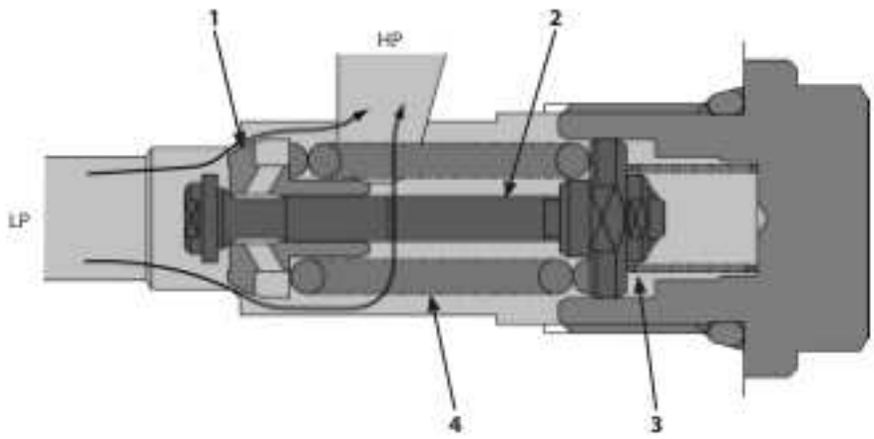
T4GB-03-02-027

During Relief Operation:



T4GB-03-02-028

During Make-Up Operation:

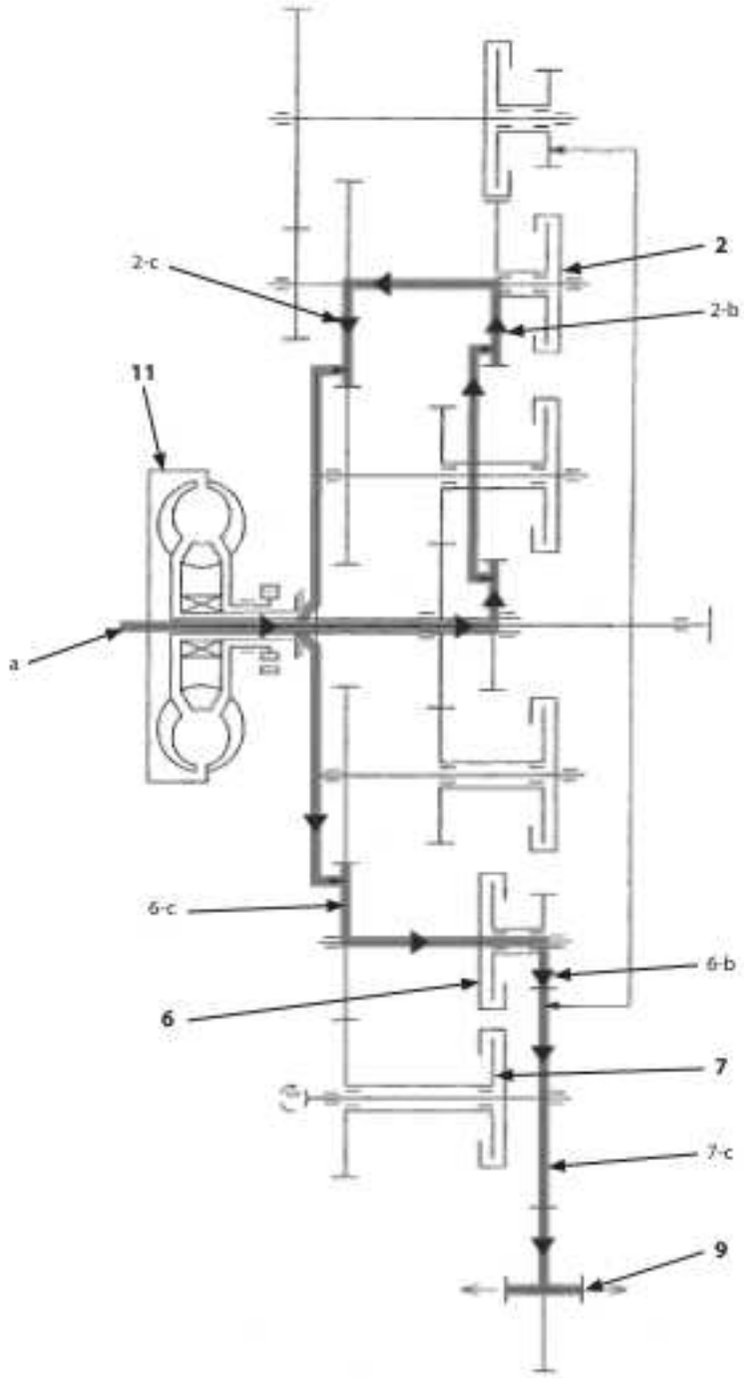


T4GB-03-02-029

HP- Actuator Circuit: LP- Hydraulic Oil Tank

1- Seat 2- Shaft 3- Spring B 4- Spring A

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TNEE-03-08-004

a- Input (From Torque Converter) b- Drive Gear c- Output Gear

2- High-Speed Forward Clutch 7- Third Speed Clutch 11- Torque Converter
6- Second Speed Clutch 9- Output Shaft Gear

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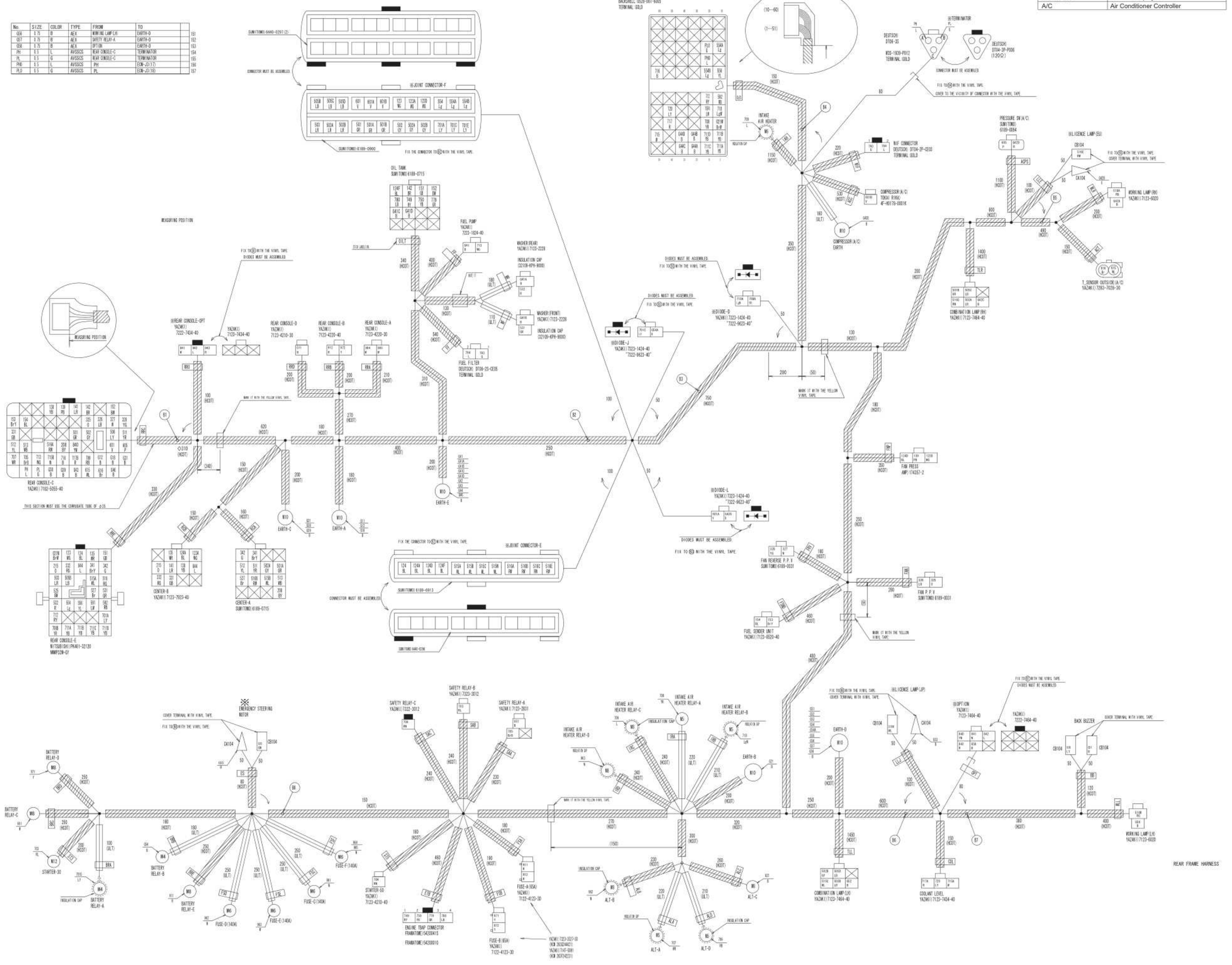
ZW180-5B REAR FRAME HARNESS

⚠CAUTION: Parts numbers on the drawing are provided only for reference purpose. To order parts on the drawing, be sure to consult the Parts Catalog.

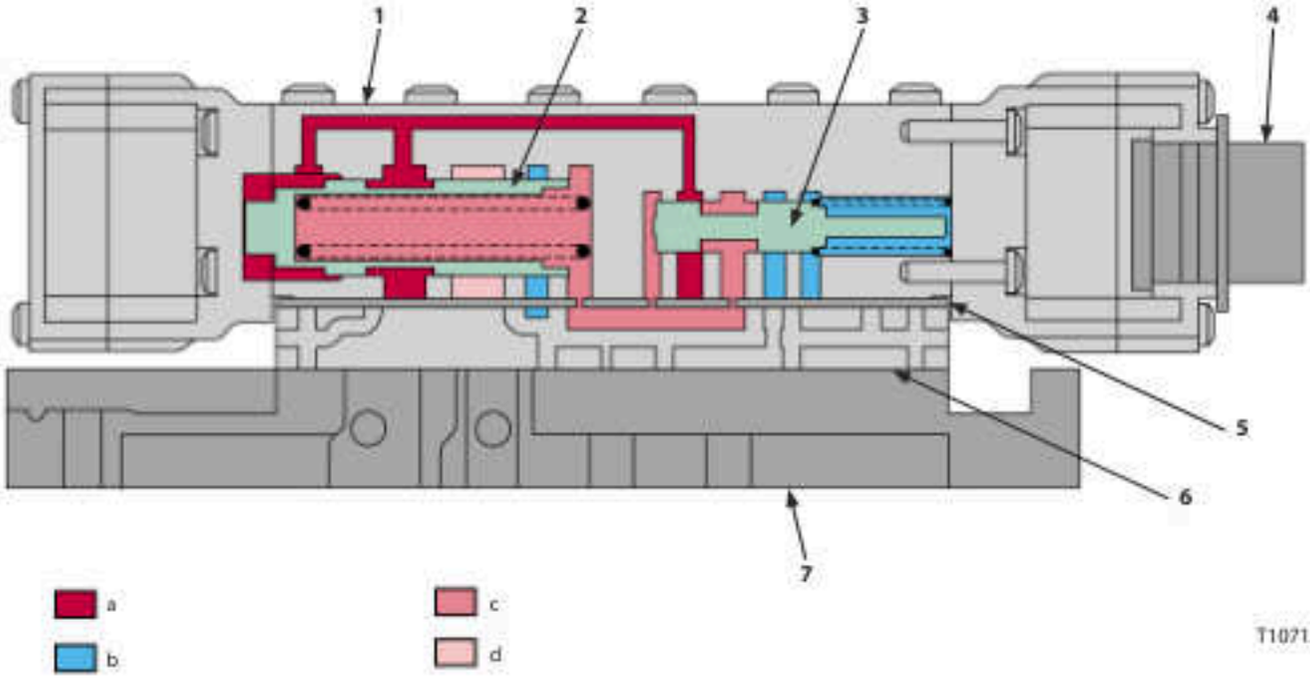
The Attached Diagram	Technical manual
SMCZ	MC (Main Controller)
T/M Controller	TCU
ICZ	Information Controller
MONITOR	Column Display Controller
A/C	Air Conditioner Controller

No.	SIZE	COLOR	TYPE	FROM	TO	
821R	0.75	Br–W	AEX	REAR CONSOLE-E	ESN-J2(3)	1
123	0.75	W–G	AEX	REAR CONSOLE-E	JOINT CONNECTOR-F	2
123A	0.75	W–G	AEX	JOINT CONNECTOR-F	CENTER-A	3
123B	0.75	W–G	AEX	JOINT CONNECTOR-F	FAN PRESS	4
124	0.75	B–L	AEX	JOINT CONNECTOR-F	REAR CONSOLE-E	5
124A	0.75	B–L	AEX	CENTER-A	JOINT CONNECTOR-E	6
124B	0.75	B–L	AEX	FAN PRESS	JOINT CONNECTOR-F	7
124F	0.75	B–L	AEX	F/L TANK PIPE EXL TEMP	JOINT CONNECTOR-E	8
135	0.75	W–R	AEX	CENTER-A	REAR CONSOLE-E	9
138	0.75	Y–B	AEX	CENTER-A	REAR CONSOLE-C	10
139	0.75	P–B	AEX	FAN PRESS EXL	REAR CONSOLE-C	11
141	0.75	L–R	AEX	REAR CONSOLE-C	CENTER-A	12
142	0.75	B–R	AEX	REAR CONSOLE-E	F/L TANK PIPE EXL TEMP	13
151	0.75	G–B	AEX	REAR CONSOLE-E	R/L TANK SUP EXHEAT	14
152	0.75	B–W	AEX	REAR CONSOLE-C	F/L TANK PIPE EXL LEVEL	15
153	0.75	Br–Y	AEX	REAR CONSOLE-C	FUEL SENDER UNIT	16
154	0.75	B–L	AEX	FUEL SENDER UNIT	REAR CONSOLE-C	17
308	0.75	B–Y	AEX	REAR CONSOLE-E	CENTER-A	18
315	0.75	O	AEX	REAR CONSOLE-E	CENTER-A	19
325	0.75	O	AEX	REAR CONSOLE-E	FAN P P V	20
326	0.75	L–B	AEX	FAN P P V	REAR CONSOLE-C	21
327	0.75	W	AEX	REAR CONSOLE-C	FAN REVERSE P P V	22
328	0.75	Y–G	AEX	FAN REVERSE P P V	REAR CONSOLE-C	23
331	0.75	G–B	AEX	REAR CONSOLE-E	CENTER-A	24
332	0.75	W–G	AEX	CENTER-A	REAR CONSOLE-E	25
341	0.75	Br–Y	AEX	REAR CONSOLE-E	CENTER-A	26
342	0.75	G	AEX	REAR CONSOLE-E	CENTER-A	27
501	0.75	G–R	AEX	REAR CONSOLE-C	JOINT CONNECTOR-F	28
501A	0.75	G–R	AEX	JOINT CONNECTOR-F	CENTER-A	29
501B	0.75	G–R	AEX	JOINT CONNECTOR-F	COMBINATION LAMP (RR)	30
502	0.75	G–Y	AEX	REAR CONSOLE-C	JOINT CONNECTOR-F	31
502A	0.75	G–Y	AEX	JOINT CONNECTOR-F	CENTER-A	32
502B	0.75	G–Y	AEX	JOINT CONNECTOR-F	COMBINATION LAMP (LH)	33
503	0.75	L–R	AEX	REAR CONSOLE-E	JOINT CONNECTOR-F	34
503A	0.75	L–R	AEX	JOINT CONNECTOR-F	COMBINATION LAMP (RR)	35
503B	0.75	L–R	AEX	JOINT CONNECTOR-F	COMBINATION LAMP (LH)	36
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505C	0.75	L–B	AEX	JOINT CONNECTOR-F	COMBINATION LAMP (RR)	38
505D	0.75	L–B	AEX	JOINT CONNECTOR-F	COMBINATION LAMP (LH)	39
506	0.75	L–Y	AEX	REAR CONSOLE-C	HOT SLIDER	40
511	1.25	Y–R	AEX	REAR CONSOLE-C	CENTER-A	41
512	0.75	Y–L	AEX	REAR CONSOLE-C	CENTER-A	42
513	0.75	W–B	AEX	REAR CONSOLE-C	CENTER-A	43
515A	0.75	W–L	AEX	REAR CONSOLE-E	JOINT CONNECTOR-E	44
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515F	0.75	W–L	AEX	JOINT CONNECTOR-E	LICENCE LAMP (LP)	47
516A	0.75	R–W	AEX	REAR CONSOLE-C	JOINT CONNECTOR-E	48
516B	0.75	R–W	AEX	JOINT CONNECTOR-E	CENTER-A	49
516C	0.75	R–W	AEX	JOINT CONNECTOR-E	COMBINATION LAMP (RR)	50
516E	0.75	R–W	AEX	JOINT CONNECTOR-E	LICENCE LAMP (LP)	51
518	1.25	R–G	AESSX	REAR CONSOLE-E	15VA SUB	52
518A	0.75	R–G	AEX	51R	WORKING LAMP (RR)	53
518B	0.75	R–G	AEX	51R	WORKING LAMP (LH)	54
525	0.75	G–W	AEX	REAR CONSOLE-C	EMERGENCY STEERING MOTOR	55
527	0.75	Br	AEX	REAR CONSOLE-E	CENTER-A	56
531	0.75	G–R	AEX	REAR CONSOLE-E	WASHER-FRONT	57
532	0.75	R	AEX	REAR CONSOLE-E	WASHER-REAR	58
564	0.75	Lg	AEX	REAR CONSOLE-E	JOINT CONNECTOR-F	59
564A	0.75	Lg	AEX	JOINT CONNECTOR-F	ESN-J2(5)	60
564B	0.75	Lg	AEX	JOINT CONNECTOR-F	ESN-J2(10)	61
566	0.75	Y–L	AEX	REAR CONSOLE-E	ESN-J2(2)	62
581	0.75	L–W	AEX	REAR CONSOLE-E	ESN-J2(14)	63
582	0.75	R–B	AEX	ESN-J2(6)	REAR CONSOLE-C	64
601	0.75	V	AEX	REAR CONSOLE-E	JOINT CONNECTOR-F	65
601A	0.75	V	AEX	51RR-1	JOINT CONNECTOR-F	66
601B	0.75	V	AEX	JOINT CONNECTOR-F	COMPRESSOR (A/C)	67
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616	0.75	Br	AEX	T_SENSOR OUTSIDE	REAR CONSOLE-C	70
701A	0.75	L–Y	AEX	REAR CONSOLE-E	JOINT CONNECTOR-F	71
701C	0.75	L–Y	AEX	51RR-1	JOINT CONNECTOR-F	72
701E	0.75	L–Y	AEX	JOINT CONNECTOR-F	BATTERY RELAY-A	73
703	5	R–L	AV	STARTER-30	SAFETY RELAY-A	74
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705	0.75	Br–B	AEX	REAR CONSOLE-C	SAFETY RELAY-A	76
707	0.75	W–R	AEX	REAR CONSOLE-E	R/T-A	77
708	0.75	Y–R	AEX	HEAD AIR HEATER RELAY-A	ESN-J2(13)	78
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708B	0.75	Y–R	AEX	REAR CONSOLE-E	70A	80
709	15	L	AV	HEAD AIR HEATER RELAY-C	HEAD AIR HEATER	81
710	0.75	Lg–W	AEX	ESN-J2(4)	HEAD AIR HEATER RELAY-B	82
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711A	1.25	Y–B	AEX	REAR CONSOLE-E	ESN-J2(1)	84
711B	1.25	Y–B	AEX	REAR CONSOLE-E	ESN-J2(9)	85
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711D	1.25	Y–B	AEX	REAR CONSOLE-E	ESN-J2(12)	87
712	0.75	W–Y	AEX	ESN-J2(15)	REAR CONSOLE-E	88
713	0.75	W–G	AEX	REAR CONSOLE-C	FUEL PUMP	89
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716B	0.75	W	AEX	71G	REAR CONSOLE-C	92
716	0.75	B	AEX	REAR CONSOLE-C	ESN-J2(8)	93
717	0.75	R	AEX	71N 71B	ESN-J2(5)	94
717A	0.75	R	AEX	COOLANT LEVEL	71T	95
717B	0.75	R	AEX	REAR CONSOLE-E	71T	96
720	0.75	L–Y	AEX	COOLANT LEVEL	ESN-J2(16)	97
749	0.75	R–Y	AEX	ENGINE TRAP CONNECTOR	F/L TANK PIPE EXL TEMP	98
750	0.75	Y–B	AEX	F/L TANK PIPE EXL TEMP	ENGINE TRAP CONNECTOR	99
779	0.75	G–R	AEX	F/L TANK PIPE EXL TEMP	ENGINE TRAP CONNECTOR	100
780	0.75	L–B	AEX	ENGINE TRAP CONNECTOR	F/L TANK PIPE EXL TEMP	101
781	0.75	G	AEX	P/P CONNECTOR	FUEL FILTER	102
784	0.75	L	AEX	FUEL FILTER	P/P CONNECTOR	103
799	0.75	R–B	AEX	ALT-R	REAR CONSOLE-C	104
840	0.75	Y–W	AEX	REAR CONSOLE-C	OPTION	105
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844	0.75	L	AEX	CENTER-A	REAR CONSOLE-E	109
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912	8	W	AV	FUSE-A 80A	REAR CONSOLE-E	111
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962	15	W	AV	ALT-B	FUSE-D 140A	113
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964	8	W	AV	FUSE-F 140A	REAR CONSOLE-E	115
965	8	W	AV	FUSE-F 140A	REAR CONSOLE-E	116
971	8	Y	AV	BATTERY RELAY-D	FUSE-B 65A	117
972	8	Y	AV	FUSE-B 65A	REAR CONSOLE-E	118
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012	2	B	AV	REAR CONSOLE-C	EARTH-A	120
018	2	B	AV	REAR CONSOLE-C	EARTH-A	121
021	15	B	AV	ALT-C	EARTH-E	122
031	2	B	AV	REAR CONSOLE-C	EARTH-C	123
038	2	B	AV	REAR CONSOLE-C	EARTH-C	124
039	2	B	AV	REAR CONSOLE-C	EARTH-C	125
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041A	0.75	B	AEX	WASHER-REAR	EARTH-E	127
041B	0.75	B	AEX	WASHER-FRONT	EARTH-E	128
041C	0.75	B	AEX	F/L TANK PIPE EXL LEVEL	EARTH-E	129
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042C	0.75	B	AEX	COMPRESSOR A/C(MITA	G42	134
042D	0.75	B	AESSX	COMBINATION LAMP (RR)	G42	135
042E	0.75	B	AEX	COMPRESSOR A/C(SANDEN	G42	136
042G	0.75	B	AEX	G42	DIODE-C	137
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044	1	B	AV	SAW SAB, SAC, SAD	EARTH-E	139
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044B	1.25	B	AEX	ESN-J2(12)	G44	141
044C	1.25	B	AEX	ESN-J2(11)	G44	142
044D	1.25	B	AEX	ESN-J2(2)	G44	143
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051	0.75	B	AEX	CAB ANTENNA	EARTH-D	145
052	0.75	B	AEX	COMBINATION LAMP (LH)	EARTH-D	146
053	0.75	B	AEX	LICENCE LAMP (LP)	EARTH-D	147
054	0.75	B	AEX	BATTERY RELAY-E	EARTH-E	148
054A	0.75	B	AEX	EARTH-E	DIODE-J	149
055	0.75	B	AEX	EMERGENCY STEERING MTR	EARTH-E	150

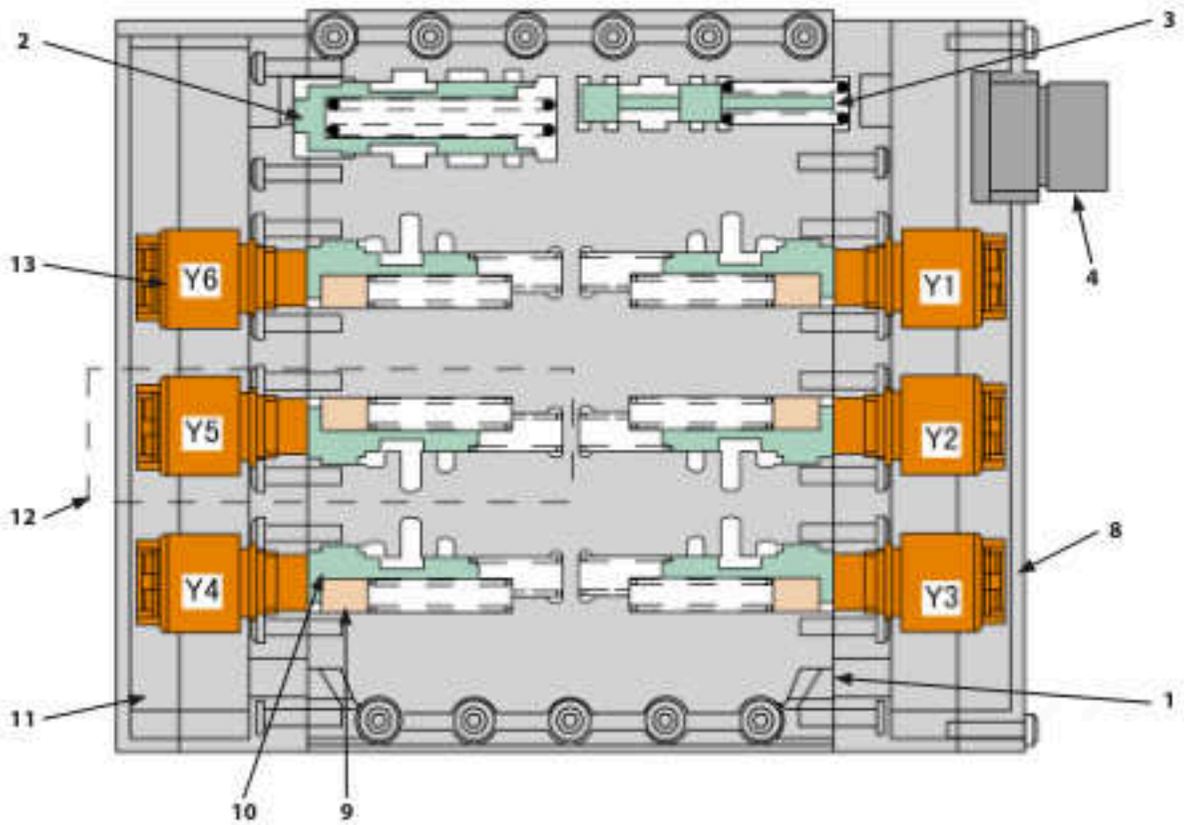
No.	SIZE	COLOR	TYPE	FROM	TO	
G56	1.75	B	AEX	WORKING LAMP (LH)	EARTH-D	151
G57	1.75	B	AEX	SAFETY RELAY-A	EARTH-D	152
G58	1.75	B	AEX	OPTION	EARTH-D	153
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PLD	0.5	G	AVSSCS	PL	ECM–J3(18)	157



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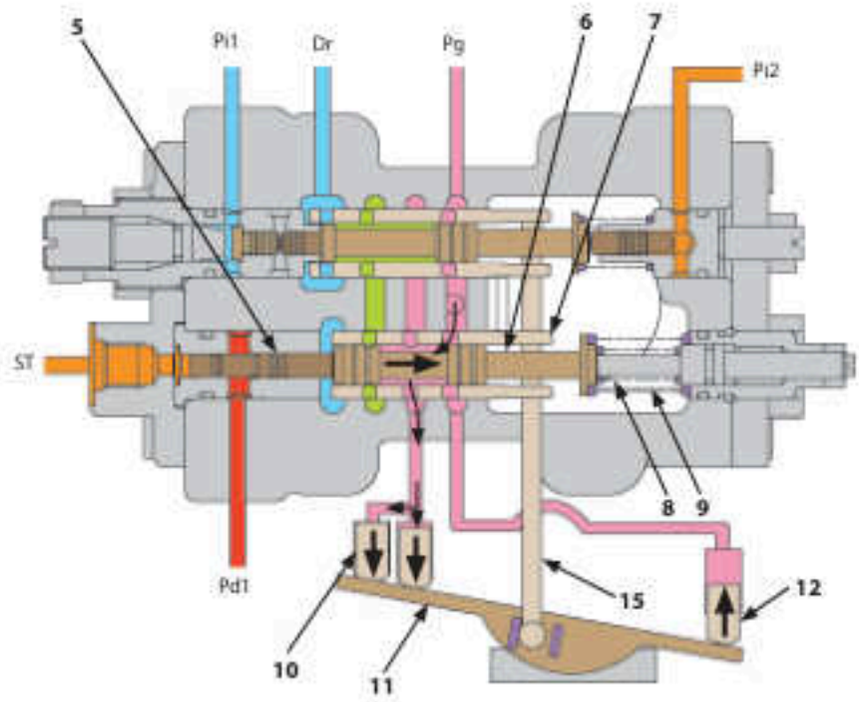


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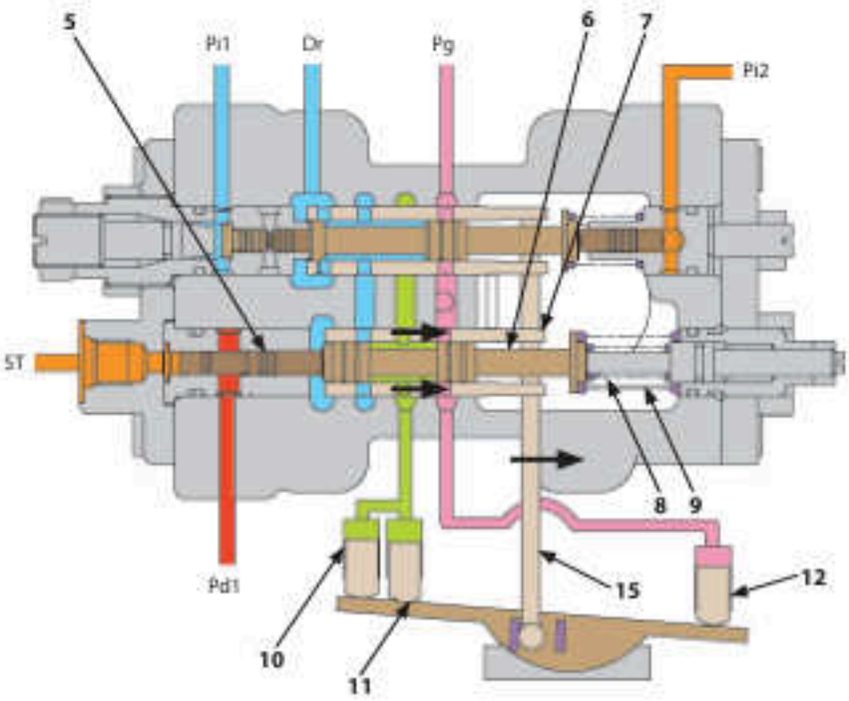
a- System Main Pressure Oil
b- Returning Oil
c- Reduced Pressure Oil
d- Converter Pressure Oil (Return Oil)

1- Valve Body
2- Pressure Control Valve
3- Pressure Reducing Valve
4- Connector
5- Middle Plate
6- Channel Plate
7- Plate
8- Cover
9- Damper Valve
10- Spool
11- Housing
12- Modulation Circuit
13- Proportional Solenoid Valve

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Pd1- Own Pump Delivery Pressure
ST- Torque Control Pressure

Dr- Returning to Hydraulic Oil Tank
Pi1- Pump Control Pressure 1

Pi2- Pump Control Pressure 2
Pg- Primary Pilot Pressure (From Pilot Pump)

5- Load Piston
6- Spool 2
7- Sleeve 2

8- Inner Spring
9- Outer Spring
10- Servo Piston 1

11- Swash Plate
12- Servo Piston 2
15- Feedback Lever Link

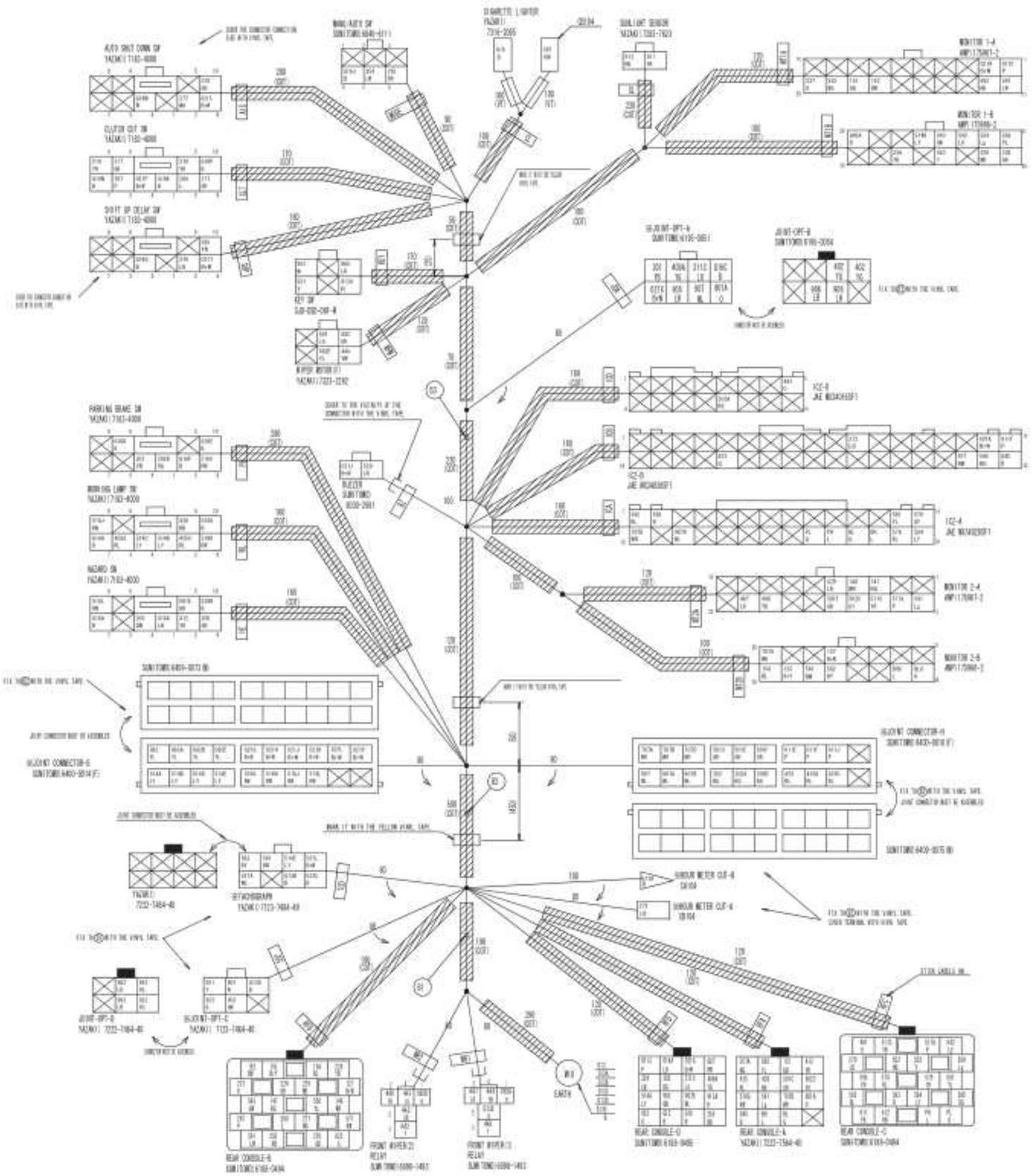
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ZW180-5B FRONT CONSOLE HARNES

⚠CAUTION: Parts numbers on the drawing are provided only for reference purpose.
To order parts on the drawing, be sure to consult the Parts Catalog.

The Attached Diagram	Technical manual
SMCZ	MC (Main Controller)
T/M Controller	TCU
ICZ	Information Controller
MONITOR	Column Display Controller
A/C	Air Conditioner Controller



No.	SIZE	COLOR	TYPE	FROM	TO	
B19E	0.5	P	AVSS	JOINT CONNECTOR-H	MONITOR 1-A (1)	1
B19F	0.5	P	AVSS	JOINT CONNECTOR-H	ICZ-B (1)	2
B19J	0.75	P	AVSS	REAR CONSOLE-B	JOINT CONNECTOR-H	3
B19M	0.5	L-B	AVSS	REAR CONSOLE-B	HAZARD SW	4
B19P	0.5	W-G	AVSS	REAR CONSOLE-A	16A1608AAH	5
B21K	0.5	Br-W	AVSS	REAR CONSOLE-B	JOINT CONNECTOR-G	6
B21R	0.5	Br-W	AVSS	JOINT CONNECTOR-G	MONITOR 1-A (2)	7
B21U	0.5	Br-W	AVSS	JOINT CONNECTOR-G	BUZZER (+)	8
B21W	0.5	Br-W	AVSS	JOINT CONNECTOR-G	ICZ-B (17)	9
B21X	0.5	Br-W	AVSS	JOINT CONNECTOR-G	16A1608AAH	10
B21Y	0.5	Br-W	AVSS	JOINT CONNECTOR-G	CLUTCH CUT SW	11
B21B	0.5	Br-W	AVSS	ICZ-F	AUTO SHIFT DOWN SW	12
B21C	0.5	Br-W	AVSS	ICZ-F	SHIFT UP DELAY SW	13
B21H	0.5	Br-W	AVSS	ICZ-F	JOINT-OPT-A	14
B42	0.75	Y-L	AVSS	REAR CONSOLE-B	JOINT CONNECTOR-G	15
B42A	0.5	Y-L	AVSS	JOINT CONNECTOR-G	FUSE BOX 1 10A/F	16
B42B	0.5	Y-L	AVSS	JOINT CONNECTOR-G	FUSE BOX 2 10A/F	17
B42E	0.75	Y-L	AVSS	JOINT CONNECTOR-G	WIPER MOTOR-F	18
B47	1.25	R-W	AVSS	REAR CONSOLE-B	CIGARETTE LIGHTER-B	19
B51	0.5	Br-W	AVSS	REAR CONSOLE-B	MONITOR 2-B (2)	20
B87	0.5	R-G	AVSS	MONITOR 2-A (2)	REAR CONSOLE-B	21
B88	0.5	W-R	AVSS	REAR CONSOLE-B	MONITOR 2-A (1)	22
B91	0.3	G-B	AVSS	MONITOR 1-A (19)	REAR CONSOLE-A	23
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