PART NO. TONEK50-EN-01

HITACHI

Reliable solutions

Technical Manual

Operational Principle

ZW220-6

Wheel Loader

Service Manual consists of the following separate Part No.

Technical Manual (Operational Principle)	: Vol. No.TONEK50-EN
Technical Manual (Troubleshooting)	: Vol. No.TTNEK50-EN
Workshop Manual	: Vol. No.WNEK50-EN

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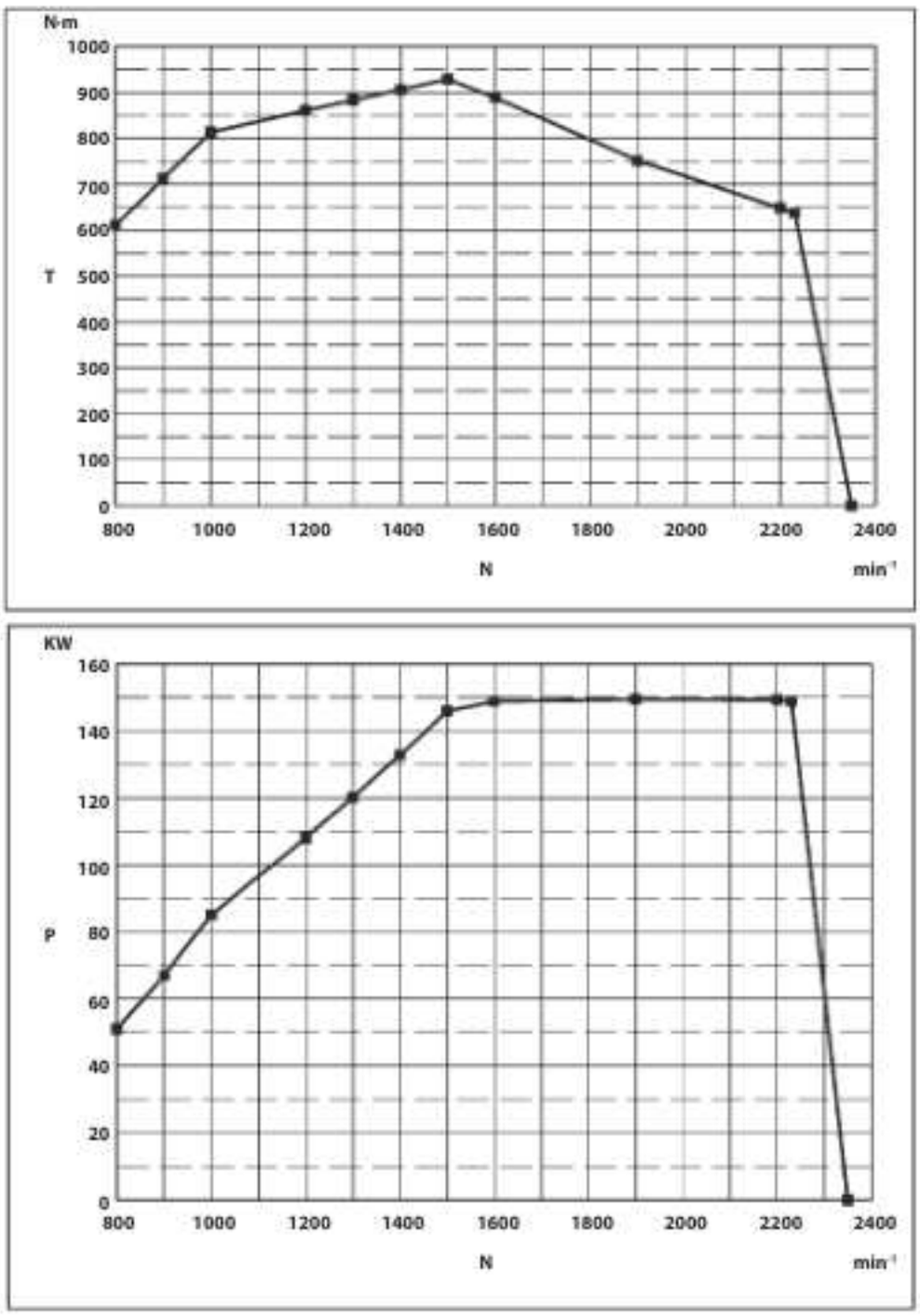
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Engine Performance Curve (QSB6.7)

Test Condition:

1. In conformity with JIS D1005 (Performance Test Method for Diesel Engine Used for Construction Machinery) under standard atmospheric pressure.
2. Equipped with alternator.

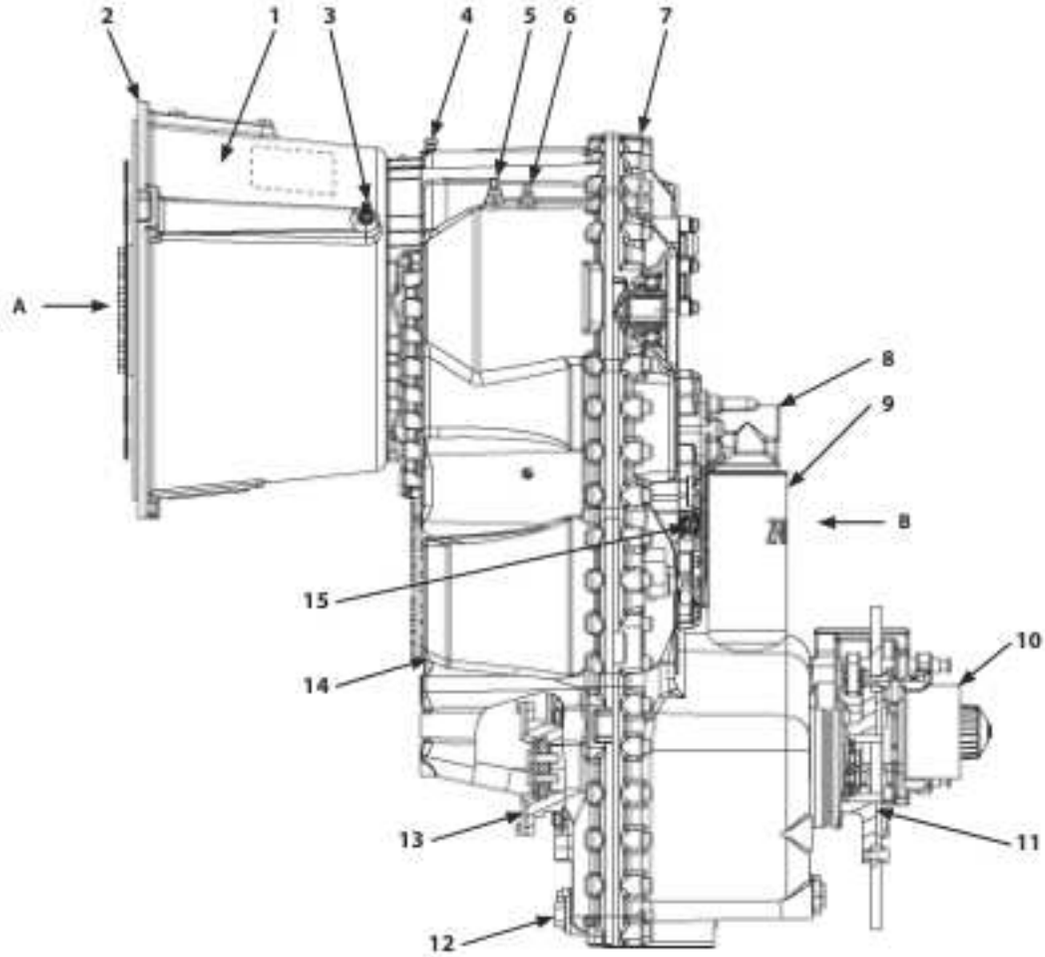


TNEK-01-03-001

P : Output N : Engine Speed
T : Torque

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Side View of Transmission



T4GB-03-09-002

1- Torque Converter
2- Torque Converter Housing
3- Torque Converter Input Shaft Speed Sensor (B1)
4- Breather
5- Transmission Intermediate Shaft Speed Sensor (B3)
6- Torque Converter Output Shaft Speed Sensor (B2)
7- Transmission Case Cover
8- Adapter for Remote Filter
9- Filter
10- Parking Brake
11- Front Axle Output Flange
12- Drain Plug with Magnet (M38x1.5)
13- Rear Axle Output Flange
14- Transmission Case
15- Vehicle Speed Sensor (B4)

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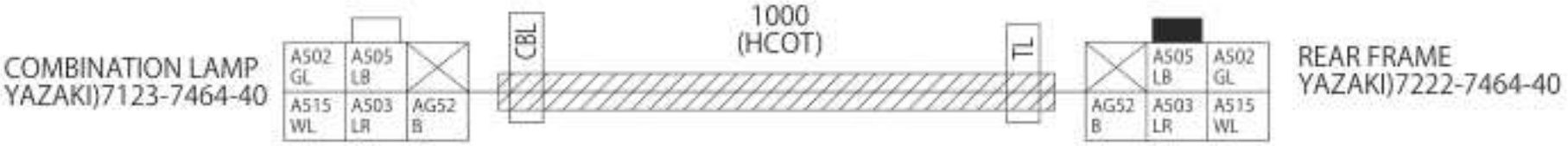
REAR COMBINATION LIGHT HARNESS

Applicable Machine

Attach to vol.No.	Model
TTNEK50-EN-00	ZW220-6
TTPD850-EN-01	ZW180-6/ZW180PL-6

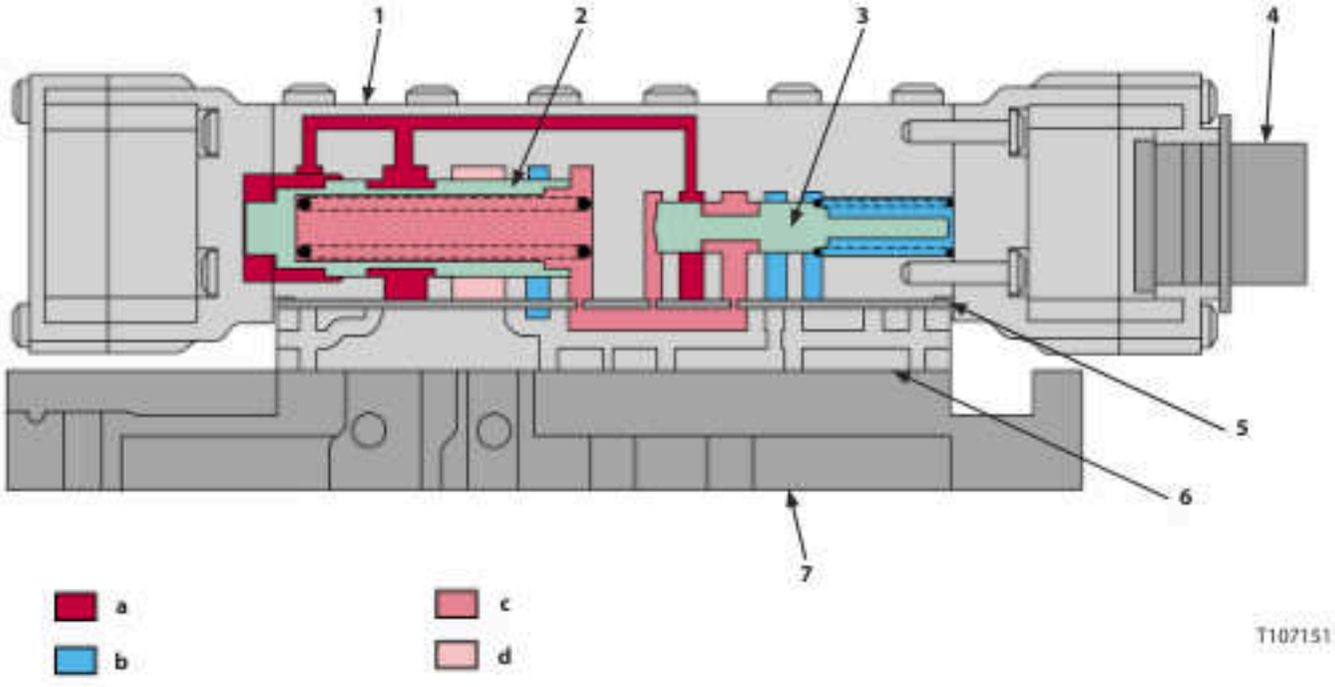
⚠CAUTION: Parts numbers on the drawing are provided only for reference purpose. To order parts on the drawing, be sure to consult the Parts Catalog.

No.	SIZE	COLOR	TYPE	FROM	TO	
A502	0.75	G-L	AEX	REAR FRAME	COMBINATION LAMP	1
A503	0.75	L-R	AEX	REAR FRAME	COMBINATION LAMP	2
A505	0.75	L-B	AEX	REAR FRAME	COMBINATION LAMP	3
A515	0.75	W-L	AEX	REAR FRAME	COMBINATION LAMP	4
AG52	0.75	B	AEX	COMBINATION LAMP	REAR FRAME	5

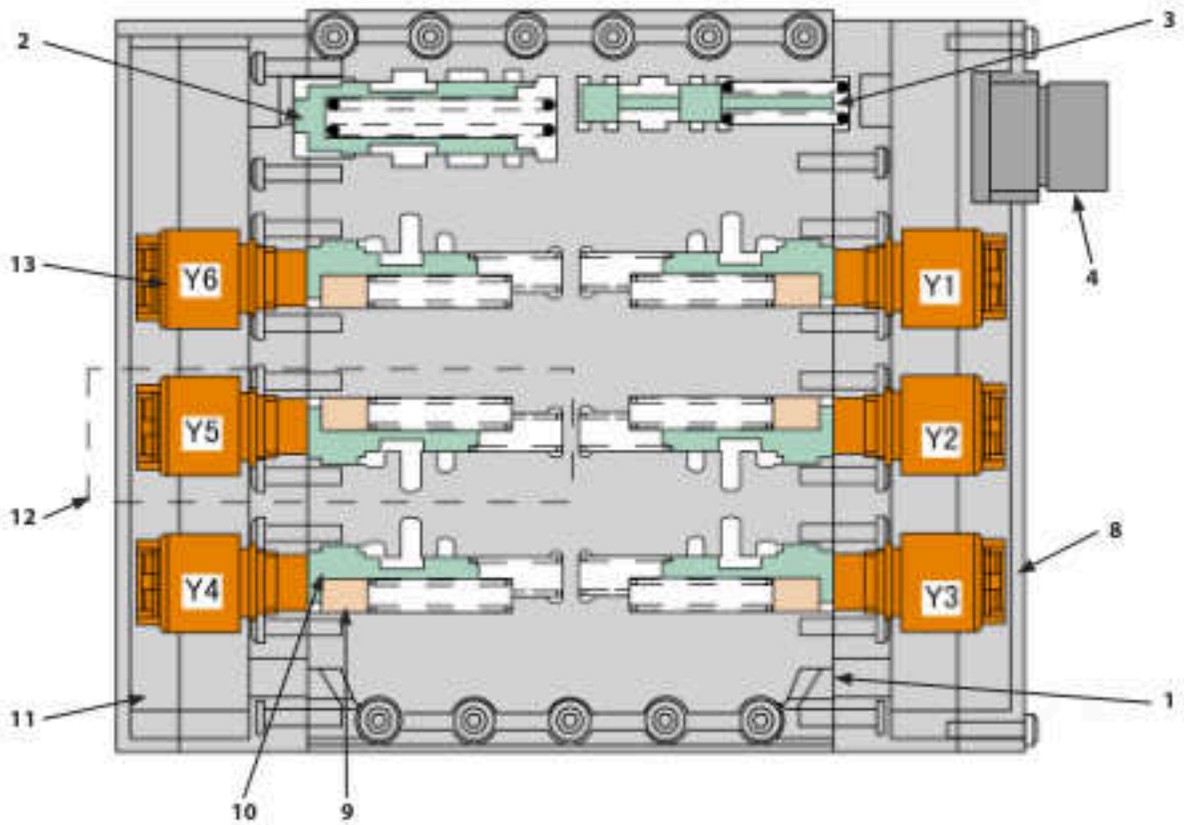


COMBINATION LAMP HARNESS

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T107151

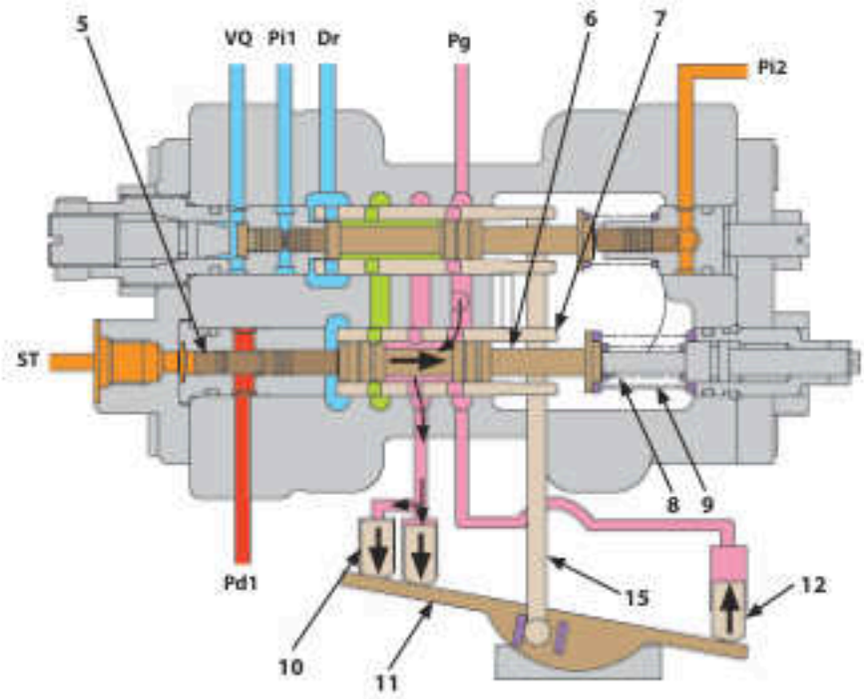


T107153

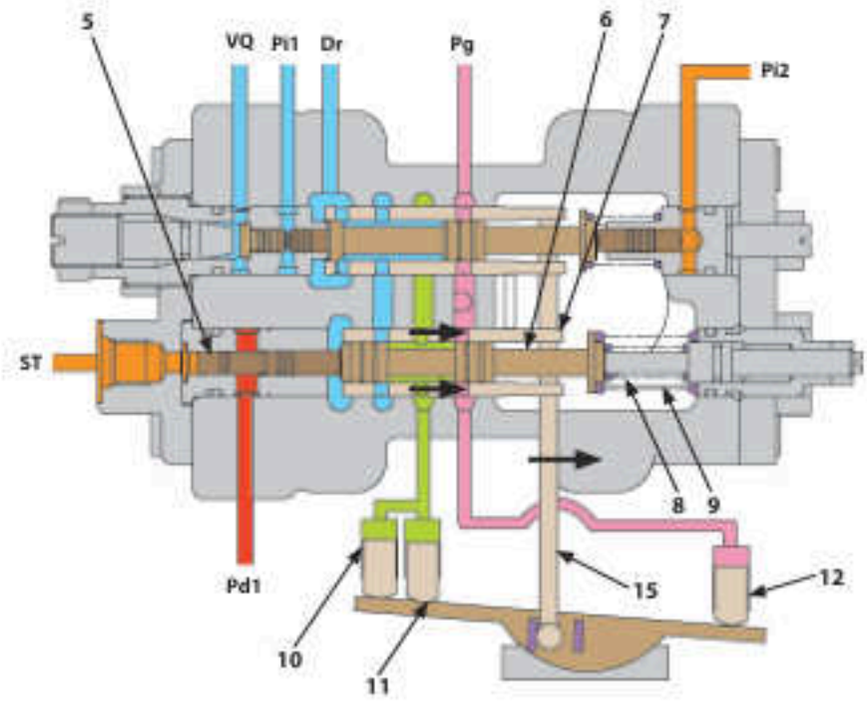
a- System Main Pressure Oil
b- Returning Oil
c- Reduced Pressure Oil
d- Converter Pressure Oil (Return Oil)

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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TNED-03-01-019



TNED-03-01-020

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)

VQ- Bucket Dump Pilot Pressure

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

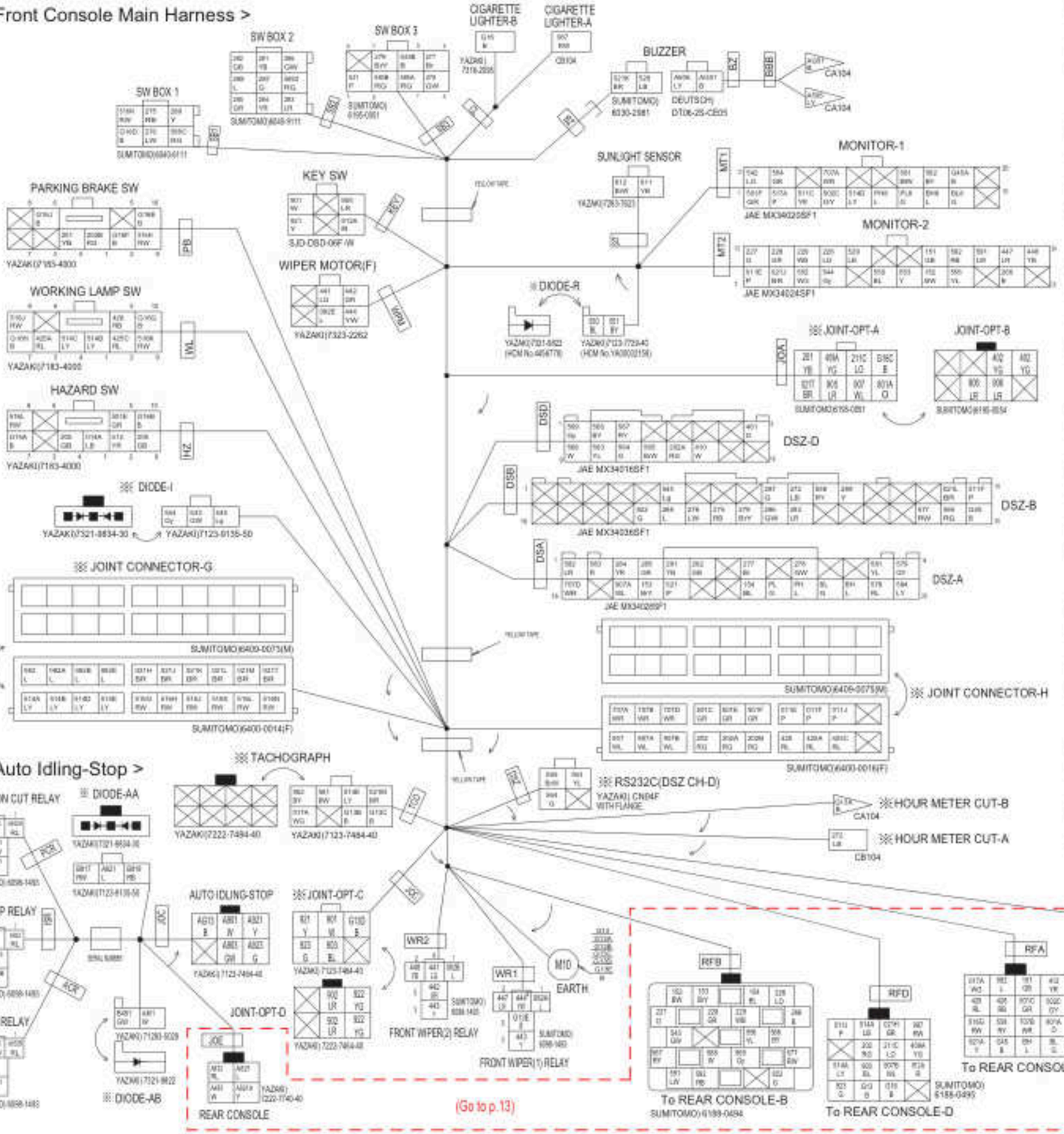
8- Inner Spring
9- Outer Spring
10- Servo Piston 1

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

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70Z7B FRONT CONSOLE WIRING DIAGRAM

< Front Console Main Harness >



No.	SIZE	COLOR	FROM	TO
015E	0.5	P	JOINT CONNECTOR-H	MONITOR-2(1)
016F	0.5	P	JOINT CONNECTOR-H	DSZ-B(19)
011J	0.75	P	REAR CONSOLE-D	JOINT CONNECTOR-H
016A	0.5	L-B	REAR CONSOLE-D	HAZARD SW
017A	0.5	W-G	REAR CONSOLE-A	TACHOGRAPH
021H	0.5	B-R	REAR CONSOLE-D	JOINT CONNECTOR-G
021J	0.5	B-R	JOINT CONNECTOR-G	MONITOR-2(2)
027E	0.5	B-R	JOINT CONNECTOR-G	BUZZER(-)
021L	0.5	B-R	JOINT CONNECTOR-G	DSZ-B(17)
021M	0.5	B-R	JOINT CONNECTOR-G	TACHOGRAPH
021T	0.5	B-R	JOINT CONNECTOR-G	JOINT-OPT-A
002	0.75	L	REAR CONSOLE-A	JOINT CONNECTOR-G
003A	0.75	L	JOINT CONNECTOR-G	FRONT WIPER(2) RELAY
003B	0.75	L	JOINT CONNECTOR-G	FRONT WIPER(1) RELAY
003E	0.75	L	JOINT CONNECTOR-G	WIPER MOTOR(F)
017	1.25	R-W	REAR CONSOLE-D	CIGARETTE LIGHTER-B
151	0.5	G-R	MONITOR-2(20)	REAR CONSOLE-A
152	0.5	B-W	MONITOR-2(8)	REAR CONSOLE-B
153	0.5	Br-Y	DSZ-A(18)	REAR CONSOLE-D
154	0.5	B-L	REAR CONSOLE-B	DSZ-A(22)
201	0.5	Y-B	JOINT-OPT-A	PARKING BRAKE SW
202	0.5	R-G	REAR CONSOLE-D	JOINT CONNECTOR-H
203A	0.5	R-G	JOINT CONNECTOR-H	DSZ-D(13)
203B	0.5	R-G	JOINT CONNECTOR-H	PARKING BRAKE SW
203	0.5	G-B	HAZARD SW	REAR CONSOLE-D
217C	0.5	L-O	REAR CONSOLE-D	JOINT-OPT-A
220	0.5	L-O	MONITOR-2(16)	REAR CONSOLE-B
221	0.5	O	MONITOR-2(15)	REAR CONSOLE-B
238	0.5	G-R	MONITOR-2(14)	REAR CONSOLE-B
239	0.5	W-B	MONITOR-2(13)	REAR CONSOLE-B
260	0.5	B	BOARD-J(1)(SELECT)	REAR CONSOLE-B
270	0.5	L-B	DSZ-B(11)	HOUR METER CUT-A
275	0.5	R-B	DSZ-B(26)	SW BOX 1
276	0.5	L-W	DSZ-B(25)	SW BOX 1
277	0.5	Br	DSZ-A(8)	SW BOX 1
278	0.5	G-W	DSZ-A(10)	SW BOX 1
279	0.5	Br-Y	DSZ-B(27)	SW BOX 2
281	0.5	Y-B	DSZ-A(5)	SW BOX 2
282	0.5	G-B	DSZ-A(9)	SW BOX 2
283	0.5	L-R	DSZ-B(28)	SW BOX 2
284	0.5	Y-R	DSZ-A(3)	SW BOX 2
285	0.5	G-R	DSZ-A(4)	SW BOX 2
286	0.5	G-W	DSZ-B(29)	SW BOX 2
287	0.5	O	DSZ-B(12)	SW BOX 2
288	0.5	L	DSZ-B(24)	SW BOX 1
289	0.5	Y	DSZ-B(23)	SW BOX 1
402	0.5	Y-G	JOINT-OPT-B	JOINT-OPT-B
409A	0.5	Y-O	REAR CONSOLE-D	JOINT-OPT-B
410	0.5	W	REAR CONSOLE-C	DSZ-B(14)
412	0.5	Y-R	HAZARD SW	REAR CONSOLE-A
425	0.5	R-L	JOINT CONNECTOR-H	REAR CONSOLE-A
429A	0.5	R-L	WORKING LAMP SW	JOINT CONNECTOR-H
429C	0.5	R-L	WORKING LAMP SW	JOINT CONNECTOR-H
429	0.5	R-B	WORKING LAMP SW	REAR CONSOLE-A
441	0.75	L-G	WIPER MOTOR(F)-L	FRONT WIPER(2) RELAY
442	0.75	G-R	WIPER MOTOR(F)-H	FRONT WIPER(2) RELAY
443	0.75	Y	FRONT WIPER(2) RELAY	FRONT WIPER(1) RELAY
444	0.75	Y-W	FRONT WIPER(1) RELAY	WIPER MOTOR(F)
447	0.5	L-R	FRONT WIPER(1) RELAY	MONITOR-2(23)
448	0.5	Y-B	FRONT WIPER(2) RELAY	MONITOR-2(24)
451	0.5	O	REAR CONSOLE-C	DSZ-D(1)
501C	0.5	G-R	REAR CONSOLE-A	JOINT CONNECTOR-H
501E	0.5	G-R	JOINT CONNECTOR-H	HAZARD SW
501F	0.5	G-R	JOINT CONNECTOR-H	MONITOR-1(1)
502C	0.5	G-Y	REAR CONSOLE-A	MONITOR-1(4)
502E	0.5	Y-R	REAR CONSOLE-C	MONITOR-1(3)
514A	0.5	L-Y	REAR CONSOLE-D	JOINT CONNECTOR-G
514B	0.5	L-Y	JOINT CONNECTOR-G	WORKING LAMP SW
514C	0.5	L-Y	514B	WORKING LAMP SW
514D	0.5	L-Y	JOINT CONNECTOR-G	MONITOR-1(5)
514E	0.5	L-Y	JOINT CONNECTOR-G	TACHOGRAPH
516D	0.5	R-W	REAR CONSOLE-A	JOINT CONNECTOR-G
516H	0.5	R-W	JOINT CONNECTOR-G	PARKING BRAKE SW
516J	0.5	R-W	JOINT CONNECTOR-G	WORKING LAMP SW
516K	0.5	R-W	JOINT CONNECTOR-G	WORKING LAMP SW
516L	0.5	R-W	JOINT CONNECTOR-G	HAZARD SW
516E	0.5	R-W	JOINT CONNECTOR-G	SW BOX 1
517A	0.5	P	REAR CONSOLE-E	MONITOR-1(2)
521	0.5	P	DSZ-A(15)	SW BOX 3
529	0.5	L-B	BUZZER(-)	MONITOR-2(17)

No.	SIZE	COLOR	FROM	TO
542	0.5	L-O	MONITOR-1(17)	REAR CONSOLE-C
543	0.5	G-W	DIODE-I	REAR CONSOLE-B
544	0.5	Gy	MONITOR-2(4)	DIODE-I
545	0.5	Lg	DSZ-B(5)	DIODE-I
550	0.5	B-L	DIODE-R	MONITOR-2(6)
551	0.5	B-Y	REAR CONSOLE-E	DIODE-R
552	0.5	W-G	MONITOR-2(3)	REAR CONSOLE-C
553	0.5	Y	MONITOR-2(7)	REAR CONSOLE-C
554	0.5	G-R	MONITOR-1(12)	REAR CONSOLE-C
555	0.5	Y-L	MONITOR-2(9)	REAR CONSOLE-B
556	0.5	R-Y	DSZ-B(12)	REAR CONSOLE-B
561	0.5	B-W	MONITOR-1(11)	TACHOGRAPH
562	0.5	B-Y	MONITOR-1(16)	TACHOGRAPH
563	0.5	Y-L	DSZ-B(10)	RS232C(DSZ CH-D)
564	0.5	G	DSZ-B(11)	RS232C(DSZ CH-D)
565	0.5	Br-W	DSZ-B(13)	RS232C(DSZ CH-D)
566	0.5	B-Y	REAR CONSOLE-B	DSZ-B(2)
567	0.5	R-Y	DSZ-B(3)	REAR CONSOLE-B
568	0.5	W	REAR CONSOLE-B	DSZ-B(8)
569	0.5	Gr	REAR CONSOLE-B	DSZ-B(1)
577	0.5	R-W	DSZ-B(30)	REAR CONSOLE-B
578	0.5	R-L	DSZ-B(27)	REAR CONSOLE-C
579	0.5	G-Y	DSZ-B(14)	REAR CONSOLE-C
581	0.5	Y-L	DSZ-A(13)	REAR CONSOLE-C
582	0.5	L-R	DSZ-A(7)	REAR CONSOLE-C
583	0.5	R	DSZ-A(6)	REAR CONSOLE-C
584	0.5	L-Y	DSZ-A(28)	REAR CONSOLE-C
585	0.5	R-G	REAR CONSOLE-E	DSZ-B(31)
585A	0.5	R-G	SW BOX 1	585
585B	0.5	R-G	SW BOX 1	585
585C	0.5	R-G	SW BOX 1	585
585D	0.5	R-G	SW BOX 2	585
591	0.5	L-W	REAR CONSOLE-B	MONITOR-2(22)
592	0.5	R-B	REAR CONSOLE-B	MONITOR-2(21)
611	0.5	Y-B	REAR CONSOLE-C	SUNLIGHT SENSOR
612	0.5	Br-W	SUNLIGHT SENSOR	REAR CONSOLE-C
703A	0.5	W-R	JOINT CONNECTOR-H	MONITOR-1(14)
703B	0.5	W-R	REAR CONSOLE-B	JOINT CONNECTOR-H
703D	0.5	W-R	JOINT CONNECTOR-H	DSZ-A(11)
801A	0.5	O	REAR CONSOLE-A	JOINT-OPT-A
802	0.5	G	DSZ-B(22)	REAR CONSOLE-B
901	0.5	W	KEY SW(ACC)	JOINT-OPT-E
902	0.5	L-R	JOINT-OPT-B	JOINT-OPT-E
903	0.5	B-L	JOINT-OPT-C	REAR CONSOLE-D
905	0.75	L-R	KEY SW(START)	JOINT-OPT-A
906	0.75	L-R	JOINT-OPT-B	JOINT-OPT-E
907	0.75	W-L	JOINT-OPT-A	JOINT CONNECTOR-A
907A	0.5	W-L	JOINT CONNECTOR-A	DSZ-A(17)
907B	0.75	W-L	JOINT CONNECTOR-A	REAR CONSOLE-E
910A	1.25	R	REAR CONSOLE-D	KEY SW(B)
911	1.25	Y	KEY SW(IG)	JOINT-OPT-E
921A	0.5	Y	B21	REAR CONSOLE-A
922	1.25	Y-G	JOINT-OPT-B	JOINT-OPT-D
923	1.25	O	JOINT-OPT-E	REAR CONSOLE-D
G01	2	B	EARTH	REAR CONSOLE-D
G15A	0.5	B	HOUR METER CUT-B	EARTH
G15B	0.5	B	TACHOGRAPH	EARTH
G15C	0.5	B	TACHOGRAPH	EARTH
G15D	0.5	B	JOINT-OPT-E	EARTH
G15E	0.75	B	FRONT WIPER(1) RELAY	EARTH
G16	1.25	B	CIGARETTE LIGHTER-B	REAR CONSOLE-D
G16A	0.5	B	HAZARD SW	G16
G16B	0.5	B	HAZARD SW	G16
G16C	0.5	B	JOINT-OPT-A	G16
G16D	0.5	B	SW BOX 1	G16
G16E	0.5	B	PARKING BRAKE SW	G16
G16F	0.5	B	PARKING BRAKE SW	G16
G16G	0.5	B	WORKING LAMP SW	G16
G16H	0.5	B	WORKING LAMP SW	G16
G16J	0.5	B	PARKING BRAKE SW	G16
G26	0.75	B	DSZ-B(15)	REAR CONSOLE-A
G45A	0.5	B	MONITOR-1(10)	G45
G45B	0.5	B	SW BOX 2	G45
RH	0.5	L	DSZ-A(20)	REAR CONSOLE-C
RL	0.5	G	DSZ-A(21)	REAR CONSOLE-C
RHB	0.5	L	RH	MONITOR-1(9)
RLB	0.5	G	RL	MONITOR-1(8)

< Auto Idling-Stop >

No.	SIZE	COLOR	FROM	TO
AM51	0.5	W	DIODE-AB	REAR CONSOLE
AM21	0.5	L	DIODE-AA	REAR CONSOLE
AM71A	0.5	L	A321	IDLE STOP RELAY
AM71B	0.5	L	A321	IDLE STOP RELAY
AM32	0.5	R-L	REAR CONSOLE	IDLE STOP RELAY
AM32A	0.5	R-L	A332	POWER ON CUT RELAY
AM12B	0.5	R-L	A312	ACC CUT RELAY
AM01	0.5	W	FRONT CONSOLE	ACC CUT RELAY
AM03	0.5	G-W	ACC CUT RELAY	FRONT CONSOLE
AM31	1.25	Y	FRONT CONSOLE	POWER ON CUT RELAY
AM31A	0.75	Y	A321	REAR CONSOLE
AM21	1.25	G	POWER ON CUT RELAY	FRONT CONSOLE
AM11	0.5	R	IDLE STOP RELAY	FRONT CONSOLE
BM51	0.5	G-W	POWER ON CUT RELAY	DIODE-AB
BM17	0.5	R-W	POWER ON CUT RELAY	DIODE-AA
BM16	0.5	R-B	ACC CUT RELAY	DIODE-AA

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