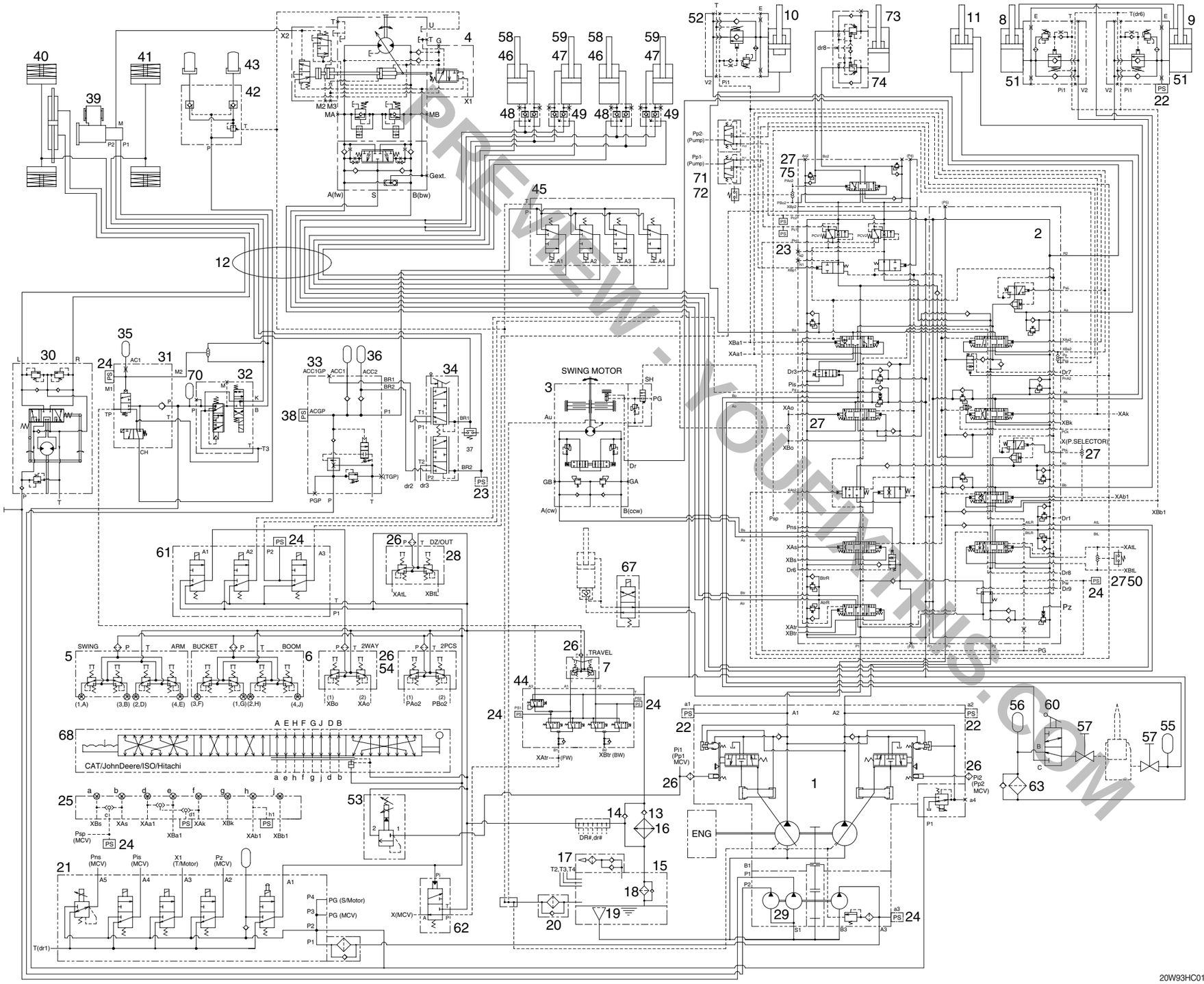
GROUP 1 HYDRAULIC CIRCUIT

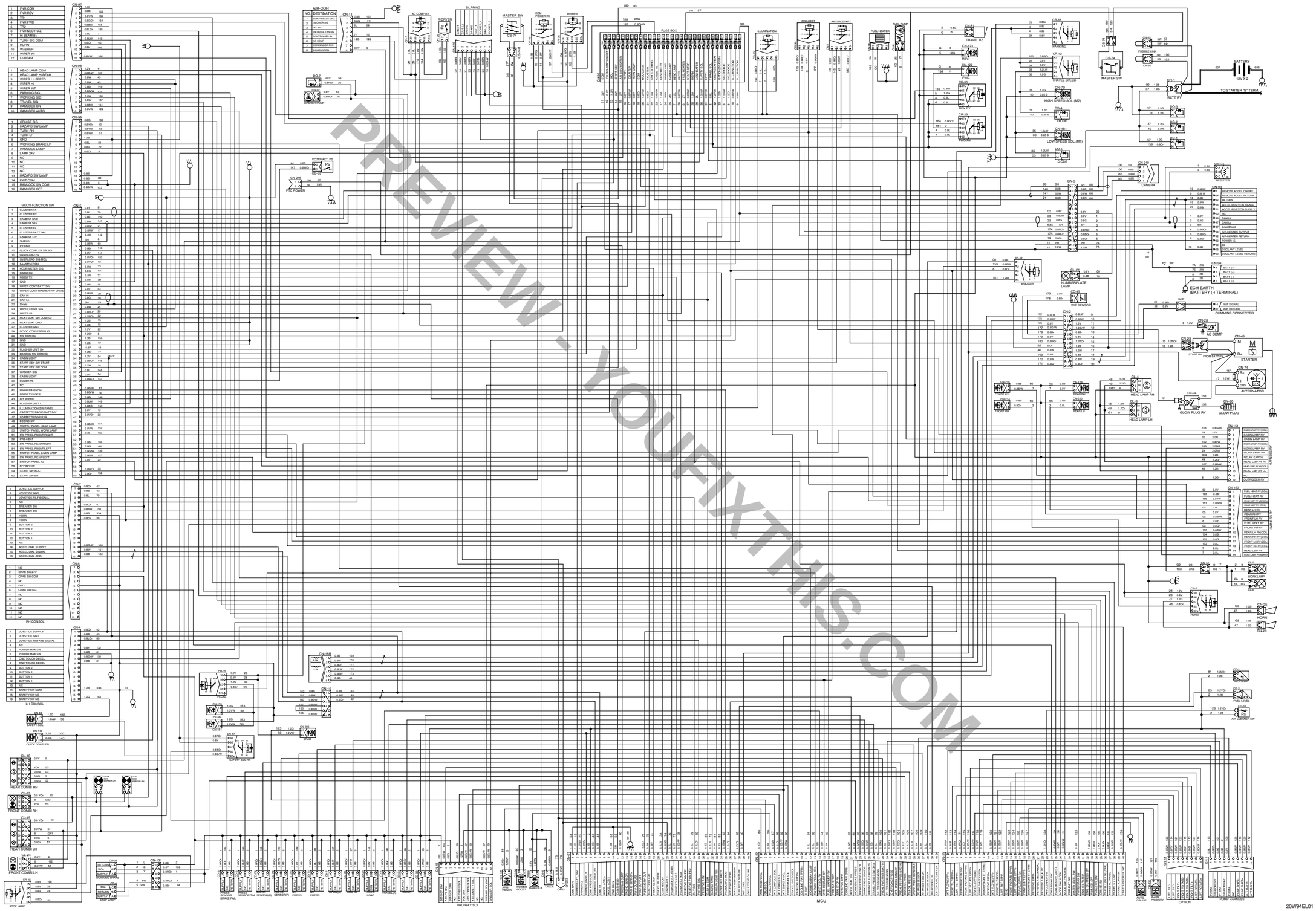


1 Main pump
2 Main control valve
3 Swing motor
4 Travel motor
5 RCV lever(LH)
6 RCV lever(RH)
7 RCV pedal
8 Boom cylinder(LH)
9 Boom cylinder(RH)
10 Arm cylinder
11 Bucket cylinder
12 Turning joint
13 Check valve
14 Check valve
15 Hydraulic tank
16 Oil cooler
17 Air breather
18 Bypass valve & Return element
19 Strainer assy
20 Drain filter
21 Pilot filter & 5 solenoid valve
22 Pressure switch(500k)
23 Pressure switch(100k)
24 Pressure switch(50k)
25 Shuttle block
26 Last guard filter
27 Shuttle valve
28 RCV dozer(option)
29 Power train pump
30 Steering valve
31 Travel control valve
32 Transmission control valve
33 Brake supply valve
34 Brake valve
35 Accumulator(option)
36 Accumulator(option)
37 Pressure switch(5k)
38 Pressure sensor(200k)
39 Transmission
40 Front axle
41 Rear axle
42 Locking valve
43 Oscillating cylinder
44 5 solenoid valve(option)
45 4 solenoid valve(option)
46 Outrigger cylinder(LH, option)
47 Outrigger cylinder(RH, option)
48 Pilot check valve(LH, option)
49 Pilot check valve(RH, option)
50 Pressure switch(option)
51 Boom safety lock valve(option)
52 Arm safety lock valve(option)
53 EPPR valve(option)
54 2 way & adjust boom pedal(option)
55 Accumulator(option)
56 Accumulator(option)
57 Stop valve(option)
58 Dozer cylinder(LH, option)
59 Dozer cylinder(RH, option)
60 3 way joint(option)
61 Solenoid valve(option)
62 Selector valve(option)
63 Brake return filter(option)
67 Quick clamp solenoid valve(option)
68 Pattern change valve(option)
70 Accumulator(option)
71 Pressure switch(option)
72 Shuttle valve(option)
73 Adjustable boom cylinder(option)
74 Adjustable boom safety lock valve(option)
75 Control valve(option)

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GROUP 2 ELECTRICAL CIRCUIT (1/3)



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1. REMOVAL AND INSTALL

1) REMOVAL

(1) Lower the work equipment to the ground and stop the engine.

(2) Operate the control levers and pedals several times to release the remaining pressure in the hydraulic piping.

(3) Loosen the breather slowly to release the pressure inside the hydraulic tank.

⚠ **Escaping fluid under pressure can penetrate the skin causing serious injury.**

(4) Loosen the drain plug under the hydraulic tank and drain the oil from the hydraulic tank.
· Hydraulic tank quantity : 180 ℓ

(5) Remove socket bolts (13) and disconnect pipe (1,2).

(6) Disconnect pilot line hoses (4, 5, 6, 7, 8, 9, 10, 11).

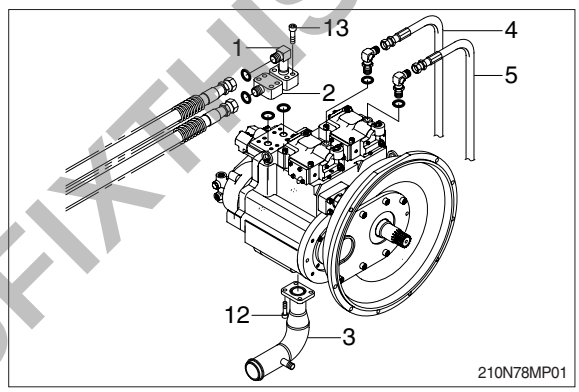
(7) Remove socket bolts (12) and disconnect pump suction pipe (3).

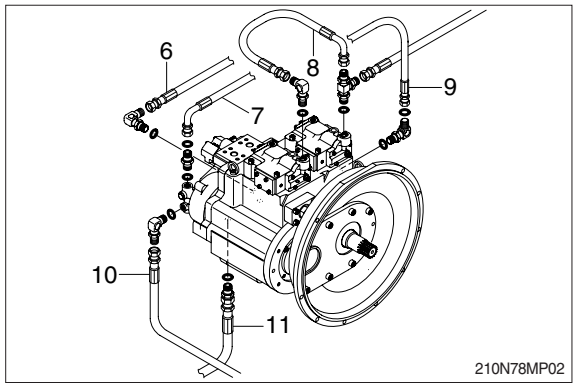
※ When pump suction pipe is disconnected, the oil inside the piping will flow out, so catch it in oil pan.

(8) Sling the pump assembly and remove the pump mounting bolts.
· Weight : 170 kg (370 lb)

※ Pull out the pump assembly from housing. When removing the pump assembly, check that all the hoses have been disconnected.







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GROUP 2 TIGHTENING TORQUE

1. MAJOR COMPONENTS

No.	Descriptions		Bolt size	Torque	
				kgf · m	lbf · ft
1	Engine	Engine mounting bolt (bracket-frame, FR)	M20 × 2.5	55±3.5	398±25.3
2		Engine mounting bolt (bracket-frame, RR)	M24 × 3.0	90±7.0	651±50.6
3		Engine mounting bolt (engine-bracket)	M12 × 1.75	10.0±1.0	72.3±7.2
4		Radiator mounting bolt, nut	M16 × 2.0	29.7±4.5	215±32.5
5		Coupling mounting bolt	M18 × 2.5	32.0±1.0	231±7.2
6	Hydraulic system Power train system	Main pump housing mounting bolt	M10 × 1.5	4.8±0.3	34.7±2.2
7		Main pump mounting bolt (bracket)	M10 × 1.5	4.8±0.3	34.7±2.2
8		Main control valve mounting bolt	M12 × 1.75	12.2±1.3	88.2±9.4
9		Travel motor mounting bolt	M10 × 1.5	29.6±3.2	214±23.1
10		Fuel tank mounting bolt	M20 × 2.5	46±5.1	333±36.9
11		Hydraulic oil tank mounting bolt	M20 × 2.5	46±5.1	333±36.9
12		Turning joint mounting bolt, nut	M12 × 1.75	12.3±1.3	89±9.4
13	Under carriage	Swing motor mounting bolt	M20 × 2.5	57.9±5.8	419±42.0
14		Swing bearing upper mounting bolt	M20 × 2.5	57.9±5.8	419±42.0
15		Swing bearing lower mounting bolt	M20 × 2.5	59.7±5.8	419±42.0
16		Real axle mounting bolt, nut	M24 × 2.0	100±10	723±72.3
17		Transmission bracket mounting bolt	M20 × 2.5	39±4.2	282±30.4
18		Transmission mounting bolt	M20 × 2.5	39±4.2	282±30.4
19		Oscillating cylinder mounting bolt	M22 × 1.5	83.2±9.2	602±66.5
20		Oscillating cylinder support bolt	M16 × 2.0	29.7±4.5	215±32.5
21		Wheel nut	M22 × 1.5	60^{+0}_{-5}	$433^{+0}_{-36.2}$
22		Front drive shaft mounting bolt, nut	M10 × 1.0	5.9±0.6	42.7±4.3
23		Rear drive shaft mounting bolt, nut	M10 × 1.0	5.9±0.6	42.7±4.3
24	Others	Counterweight mounting bolt	M36 × 3.0	340±10	2460±72.3
25		Cab mounting bolt, nut	M12 × 1.75	12.8±3.0	92.6±21.7
26		Operator's seat mounting bolt	M 8 × 1.25	4.05±0.8	29.3±5.8

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3. MACHINE ERROR CODES TABLE

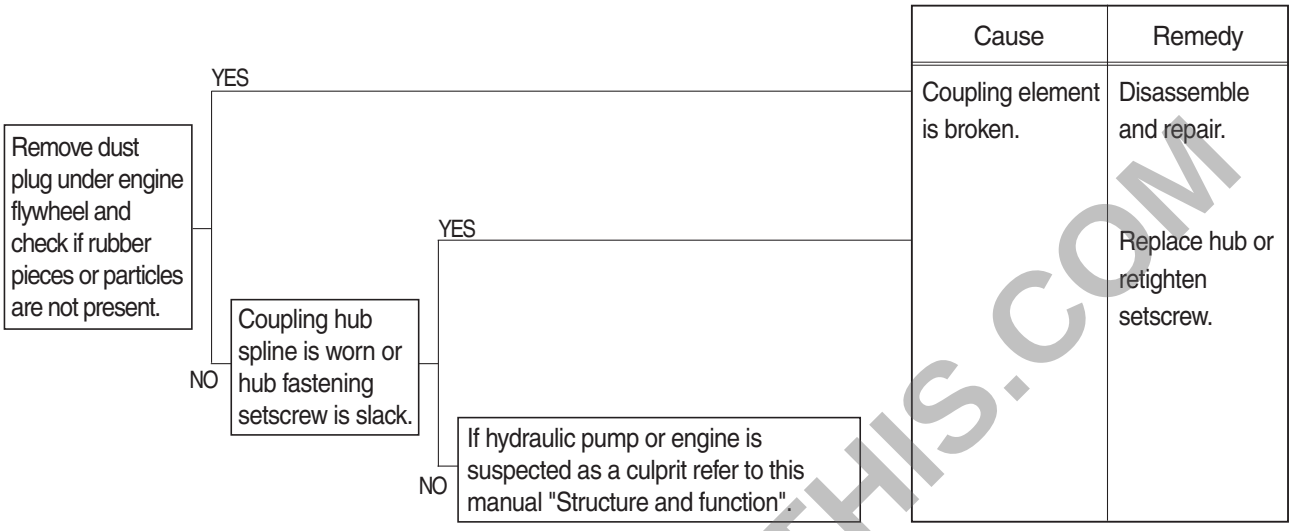
Error code		Description
HCESPN	FMI	
101	3	Hydraulic oil temperature sensor circuit - Voltage above normal, or shorted to high source.
	4	Hydraulic oil temperature circuit - Voltage below normal, or shorted to low source.
105	0	Working pressure sensor data above normal range.
	1	Working pressure sensor data below normal range.
	2	Working pressure sensor data error.
	4	Working pressure sensor circuit - Voltage below normal, or shorted to Low source.
108	0	Travel oil pressure sensor data above normal range.
	1	Travel oil pressure sensor data below normal range.
	2	Travel oil pressure sensor data error.
	4	Travel oil pressure sensor circuit - Voltage below normal, or shorted to low source.
120	0	Main pump 1 (P1) pressure sensor data above normal range.
	1	Main pump 1 (P1) pressure sensor data below normal range.
	2	Main pump 1 (P1) pressure sensor data error.
	4	Main pump 1 (P1) pressure sensor circuit - Voltage below normal, or shorted to low source.
121	0	Main pump 2 (P2) pressure sensor data above normal range.
	1	Main pump 2 (P2) pressure sensor data below normal range.
	2	Main pump 2 (P2) pressure sensor data error.
	4	Main pump 2 (P2) pressure sensor circuit - Voltage below normal, or shorted to low source.
122	0	Overload pressure sensor data above normal range.
	1	Overload pressure sensor data below normal range.
	2	Overload pressure sensor data error.
	4	Overload pressure sensor circuit - Voltage below normal, or shorted to low source.
123	0	Negative 1 pressure sensor data above normal range.
	1	Negative 1 pressure sensor data below normal range.
	2	Negative 1 pressure sensor data error.
	4	Negative 1 pressure sensor circuit - Voltage below normal, or shorted to low source.
124	0	Negative 2 Pressure sensor data above normal range.
	1	Negative 2 Pressure sensor data below normal range.
	2	Negative 2 Pressure sensor data error.
	4	Negative 2 Pressure sensor circuit - Voltage below normal, or shorted to low source.
125	0	Pilot pump (P3) pressure sensor data above normal range.
	1	Pilot pump (P3) pressure sensor data below normal range.
	2	Pilot pump (P3) pressure sensor data error.
	4	Pilot pump (P3) pressure sensor circuit - Voltage below normal, or shorted to low source.
127	0	Boom up pilot pressure sensor data above normal range.
	1	Boom up pilot pressure sensor data below normal range.
	2	Boom up pilot pressure sensor data error.
	4	Boom up pilot pressure sensor circuit - Voltage below normal, or shorted to low source.
133	0	Arm in/out & bucket in pilot pressure sensor data above normal range.
	1	Arm in/out & bucket in pilot pressure sensor data below normal range.
	2	Arm in/out & bucket in pilot pressure sensor data error.
	4	Arm in/out & bucket in pilot pressure sensor circuit - Voltage below normal, or shorted to low source.

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2. DRIVE SYSTEM

1) UNUSUAL NOISE COMES OUT OF PUMP CONNECTION



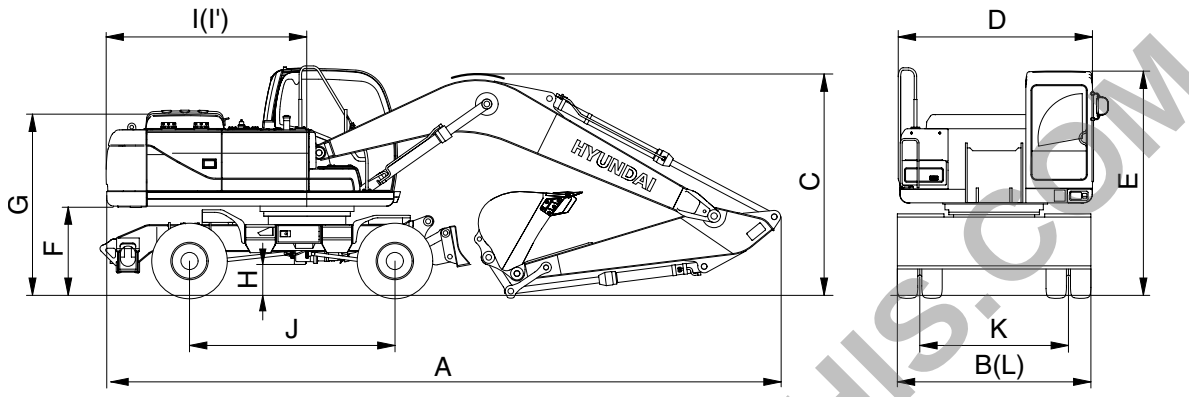
Cause	Remedy
Coupling element is broken.	Disassemble and repair.
Coupling hub spline is worn or hub fastening setscrew is slack.	Replace hub or retighten setscrew.
If hydraulic pump or engine is suspected as a culprit refer to this manual "Structure and function".	

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2. SPECIFICATIONS

1) 5.65 m (18' 6") ONE PIECE BOOM, 2.92 m (9' 7") ARM, FRONT OUTRIGGER AND REAR DOZER BLADE



20W92SP02

Description		Unit	Specification
Operating weight		kg (lb)	20500 (45200)
Bucket capacity (SAE heaped)		m^3 (yd^3)	0.80 (1.05)
Overall length	A	mm (ft-in)	9500 (31' 2")
Overall width	B		2490 (8' 2")
Overall height of boom	C		3150 (10' 4")
Upperstructure width	D		2530 (8' 4")
Cab height	E		3180 (10' 5")
Ground clearance of counterweight	F		1310 (4' 3")
Engine cover height	G		2570 (8' 5")
Minimum ground clearance	H		345 (1' 2")
Rear-end distance	I		2765 (9' 1")
Rear-end swing radius	I'		2800 (9' 2")
Wheel base	J		2800 (9' 2")
Tread	K		1874 (6' 2")
Dozer blade width	L		2490 (8' 2")
Travel speed	Low	km/hr (mph)	8.5 (5.3)
	High		35 (21.8)
Swing speed		rpm	11.0
Gradeability		Degree (%)	31.5 (61)

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1. STRUCTURE

This service manual has been prepared as an aid to improve the quality of repairs by giving the serviceman an accurate understanding of the product and by showing him the correct way to perform repairs and make judgements. Make sure you understand the contents of this manual and use it to full effect at every opportunity.
This service manual mainly contains the necessary technical information for operations performed in a service workshop.
For ease of understanding, the manual is divided into the following sections.

SECTION 1 GENERAL
This section explains the safety hints and gives the specification of the machine and major components.

SECTION 2 STRUCTURE AND FUNCTION
This section explains the structure and function of each component. It serves not only to give an understanding of the structure, but also serves as reference material for troubleshooting.

SECTION 3 HYDRAULIC SYSTEM
This section explains the hydraulic circuit, single and combined operation.

SECTION 4 ELECTRICAL SYSTEM
This section explains the electrical circuit, monitoring system and each component. It serves not only to give an understanding electrical system, but also serves as reference material for trouble shooting.

SECTION 5 MECHATRONICS SYSTEM
This section explains the computer aided power optimization system and each component.

SECTION 6 TROUBLESHOOTING
This section explains the troubleshooting charts correlating **problems** to **causes**.

SECTION 7 MAINTENANCE STANDARD
This section gives the judgement standards when inspecting disassembled parts.

SECTION 8 DISASSEMBLY AND ASSEMBLY
This section explains the order to be followed when removing, installing, disassembling or assembling each component, as well as precautions to be taken for these operations.

SECTION 9 COMPONENT MOUNTING TORQUE
This section shows bolt specifications and standard torque values needed when mounting components to the machine.

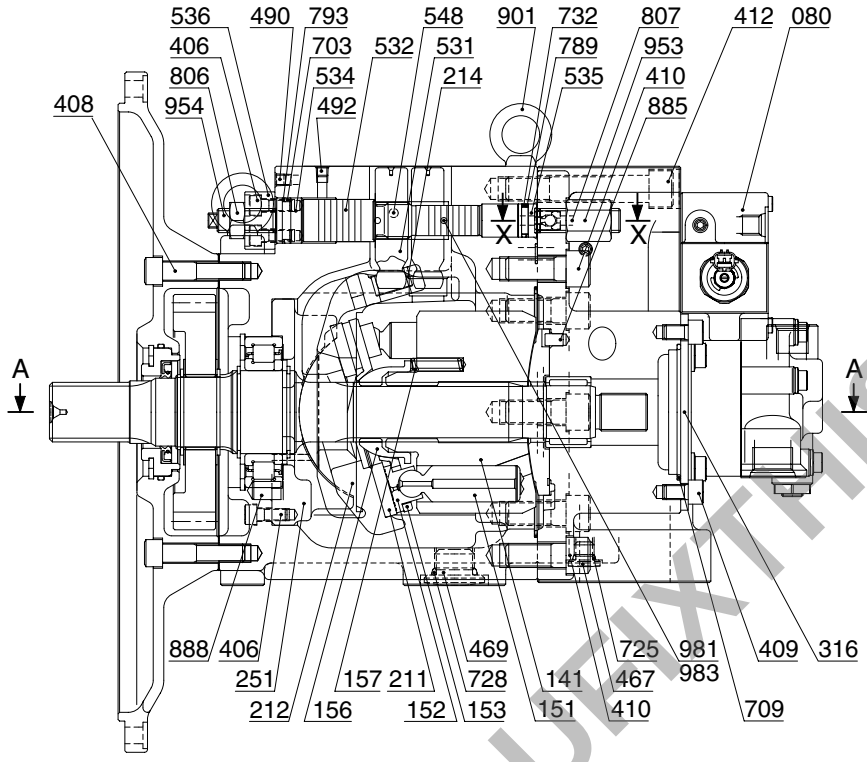
The specifications contained in this shop manual are subject to change at any time and without any advance notice. Contact your HYUNDAI distributor for the latest information.

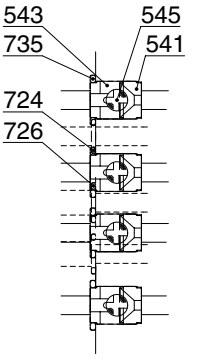
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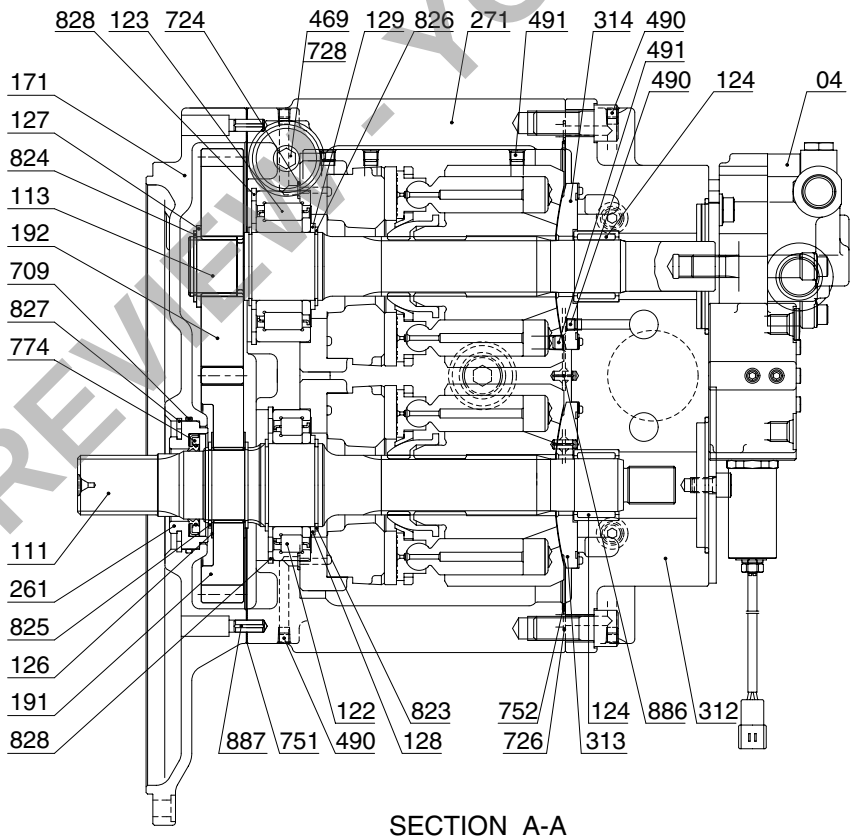
1) MAIN PUMP (1/2)

The main pump consists of two piston pumps(front & rear) and valve block.





SECTION X-X



SECTION A-A

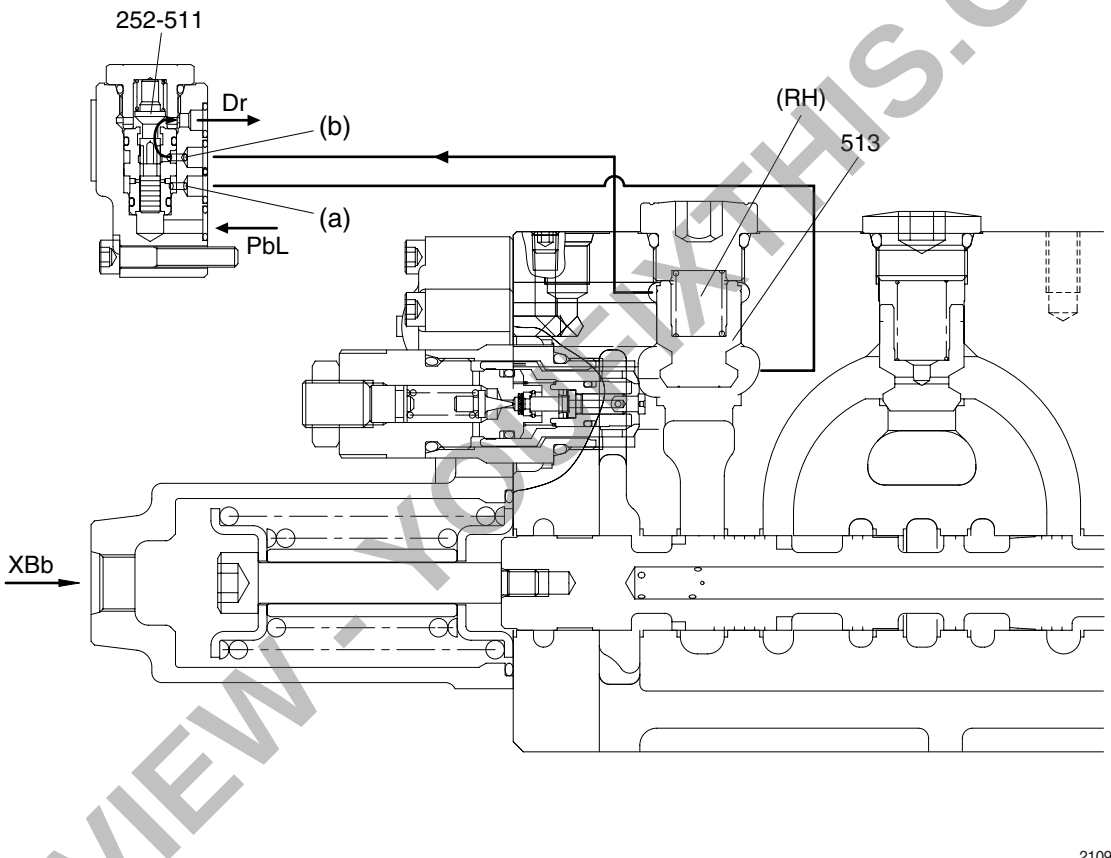
20W92MP02A

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(2) Boom down operation

During the boom down operation, the pilot pressure enters through Port PbL and XBb1. The pilot pressure transfers the spool (252-511) in the lock valve assy in the top direction. By the transfer of the spool (252-511), firstly the hole (a) is blocked and the pressurized oil from the boom cylinder head side does not enter to the spring chamber (RH). Secondly, the oil in the spring chamber (RH) enters through the hole (b) and flows to drain circuit. Therefore, the poppet (513) is lifted by the pressure of the boom cylinder head side and the function of the lock valve (252) is released.



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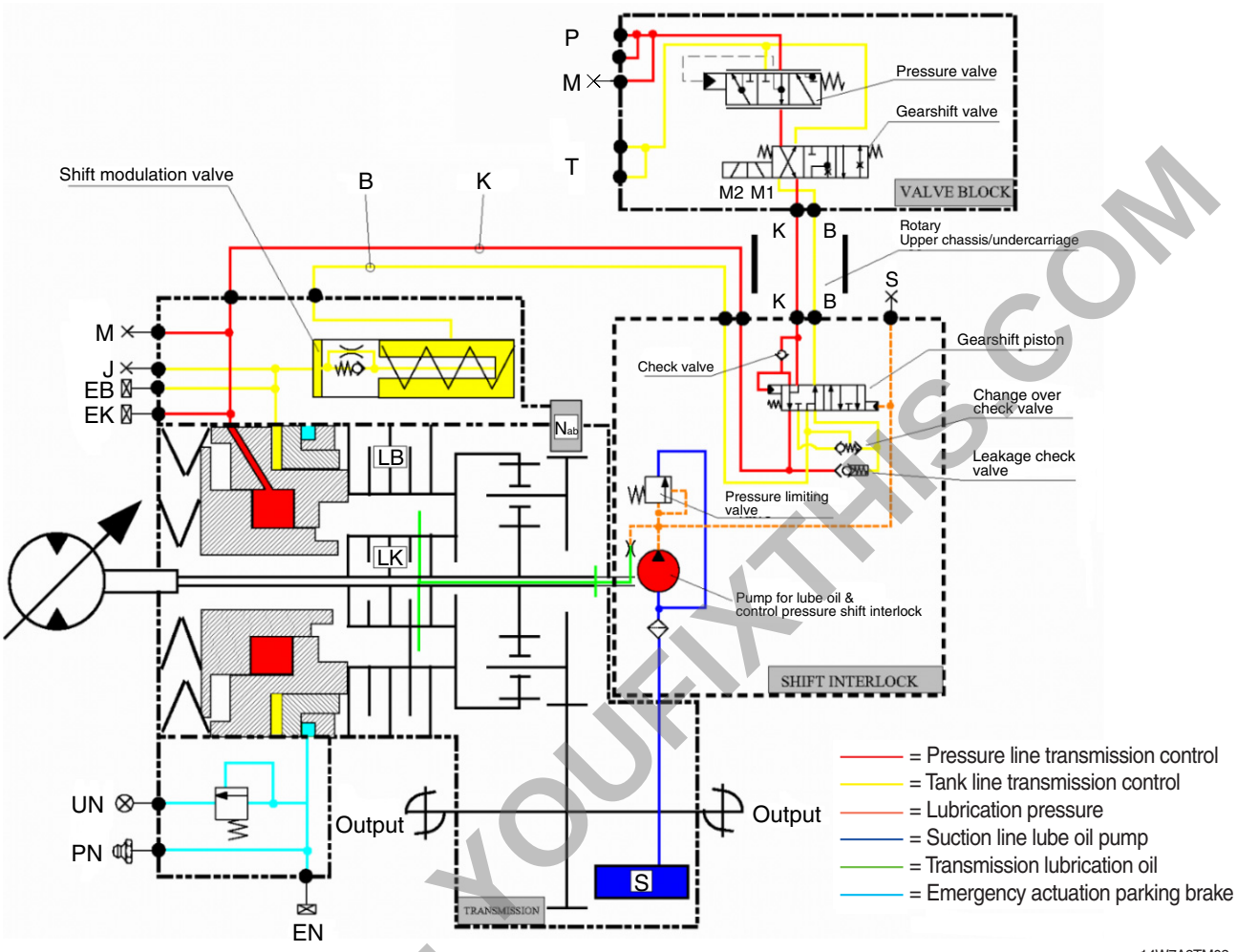
(3) Boom up operation

During the boom up operation, the pilot pressure enters through Port XAb1. The oil flowing from the boom 1 spool pushes open the poppet (513) and flows to Port Ab.

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2. TRANSMISSION DIAGRAM



Measuring points-Transmission/Shift interlock :
J : High speed (brake)
M : Low speed (clutch)
S : Lubrication pressure

Connections-Transmission/Shift interlock :
B : Brake
K : Clutch
PN : Emergency actuation parking brake

Measuring points-Valve block :
M : System pressure transmission control

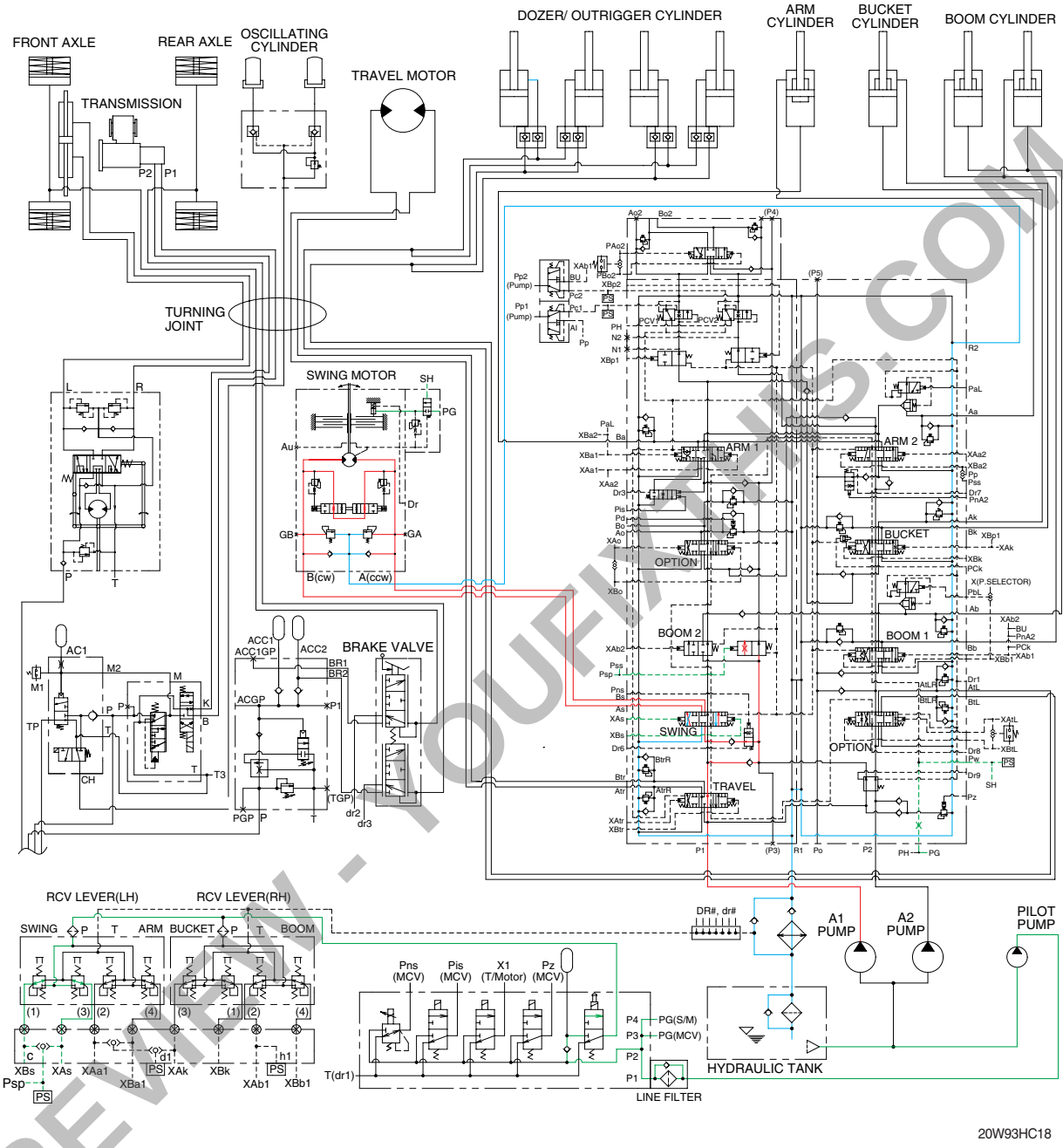
Connections-Valve block :
P : System pressure transmission control
T : Tank
B : Brake
K : Clutch

Solenoid valves-valve block :
M1 : Solenoid valve (low speed)
M2 : Solenoid valve (high speed)

Port	Name	Size	Port	Name	Size
P1 (B)	Shift pressure, High speed	M16×1.5	M	Gauge port, Low speed	M10×1.0
P2 (K)	Shift pressure, Low speed	M16×1.5	S	Lubrication pressure port	M10×1.0
J	Gauge port, High speed	M10×1.0	PN	Parking brake lubricant	Grease nipple

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9. SWING OPERATION



When the left control lever is pushed left or right, the swing spool in the main control valve is moved to the left or right swing position by the pilot oil pressure from the remote control valve.

Also the swing operation preference function is operated by the pilot pressure Psp (refer to page 2-35).

The oil from the A1 pump flows into the main control valve and then goes to the swing motor.

At the same time, the return oil from the swing motor returns to the hydraulic oil tank through the swing spool in the main control valve.

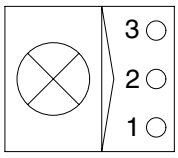
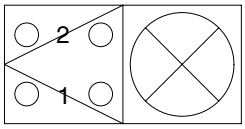
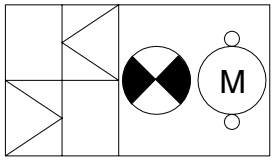
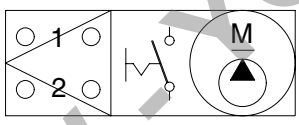
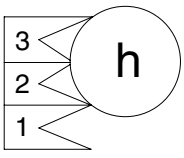
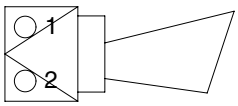
When this happens, the upper structure swings to the left or right.

The swing parking brake, make up valve and the motor brake valve are provided in the swing motor.

The cavitation which will happen to the swing motor is also prevented by the make up valve in the swing motor itself.

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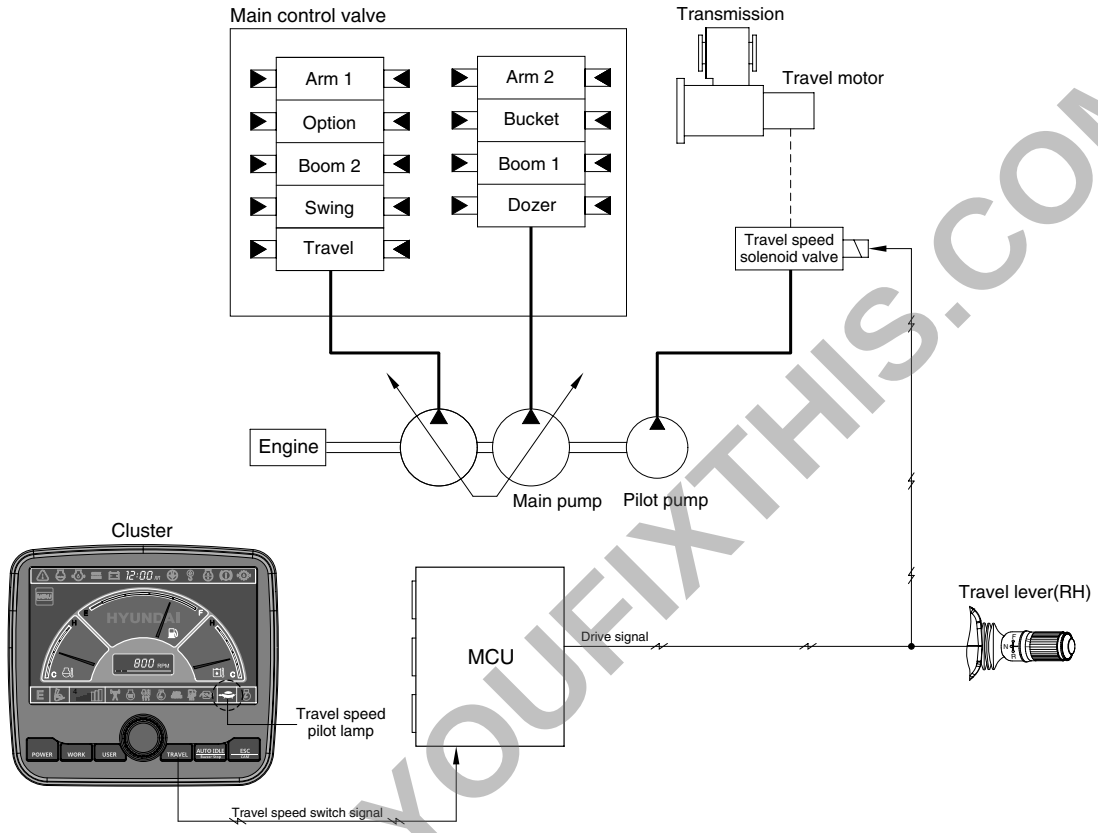
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Part name	Symbol	Specifications	Check
Room lamp	 CL-1	24V 10W	※ Check disconnection Normal : 1.0 Ω ON : 0 Ω (For terminal 1-2) ∞ Ω (For terminal 1-3) OFF : ∞ Ω (For terminal 1-2) 0 Ω (For terminal 1-3)
Work lamp, Cab lamp, Number plate lamp	 CL-5 CL-6 CL-8 CL-9 CL-21	24V 65W (H3 Type)	※ Check disconnection Normal : 1.2 Ω
Beacon lamp	 CL-7	21V 70W (H1 Type)	※ Check disconnection Normal : A few Ω
Fuel filler pump	 CN-61	24V 10A 35 ℓ /min	※ Check resistance Normal : 1.0 Ω
Service meter	 CN-48	16 ~ 32V	※ Check operation Supply power(24V) to terminal No.2 and connect terminal No.1 and ground
Horn	 CN-20 CN-25	DC22 ~ 28V 2A	※ Check operation Supply power(24V) to each terminal and connect ground.

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GROUP 5 TRAVEL SPEED CONTROL SYSTEM



20W95MS06

Travel speed can be switched manually by turning the travel speed switch on the RH multifunction switch.

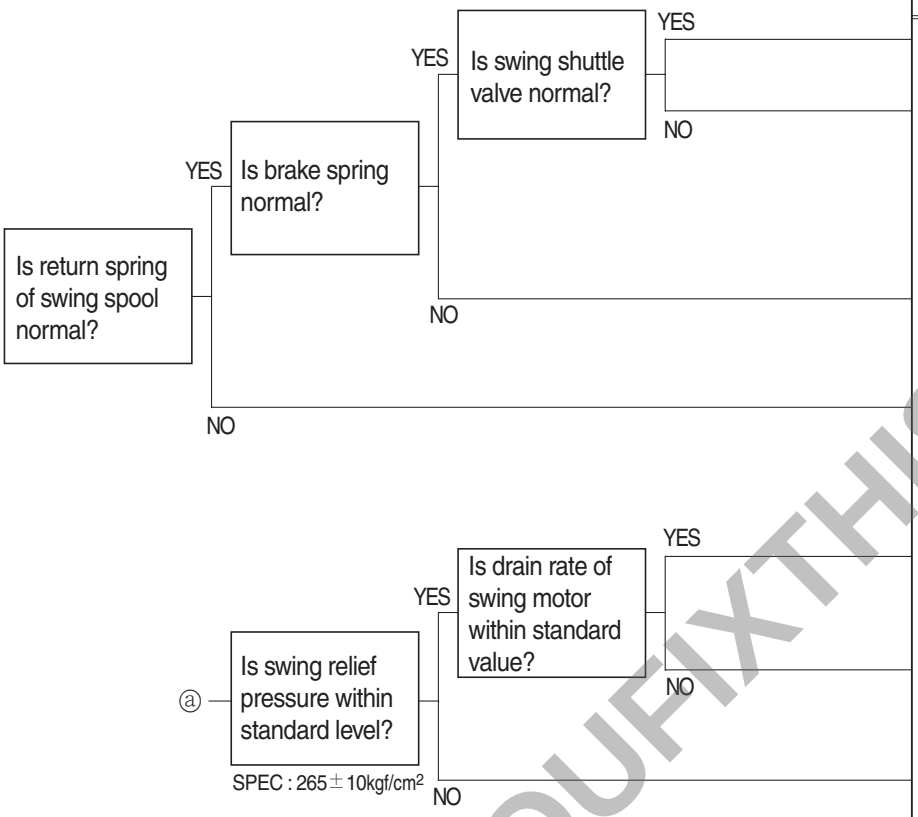
Speed	Travel speed solenoid valve	Lamp on cluster	Operation
Low	OFF	Turtle	Low speed, high driving torque in the travel motor
High	ON	Rabbit	High speed, low driving torque in the travel motor

※ Default : Turtle (Low)

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5) THE SWING UNIT DRIFTS WHEN THE MACHINE IS AT REST ON A SLOPE



Cause	Remedy
ⓐ	
Shuttle valve is faulty.	Disassemble and replace.
Brake spring is faulty.	Disassemble and replace.
Return spring of swing control valve is faulty.	Disassemble and replace.
Swing port relief valve is faulty.	Disassemble and repair or replace.
Swing motor is broken.	Disassemble and repair.
	Adjust swing relief valve pressure or replace swing relief valve.

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2) TEST PROCEDURE

(1) Test 7 : Check voltage at CN-52(26) and ground.

① Prepare 1 piece of thin sharp pin, steel or copper.

② Insert prepared pin to rear side of connectors : One pin to (26) of CN-52.

③ Starting key ON.

④ Check voltage as figure.

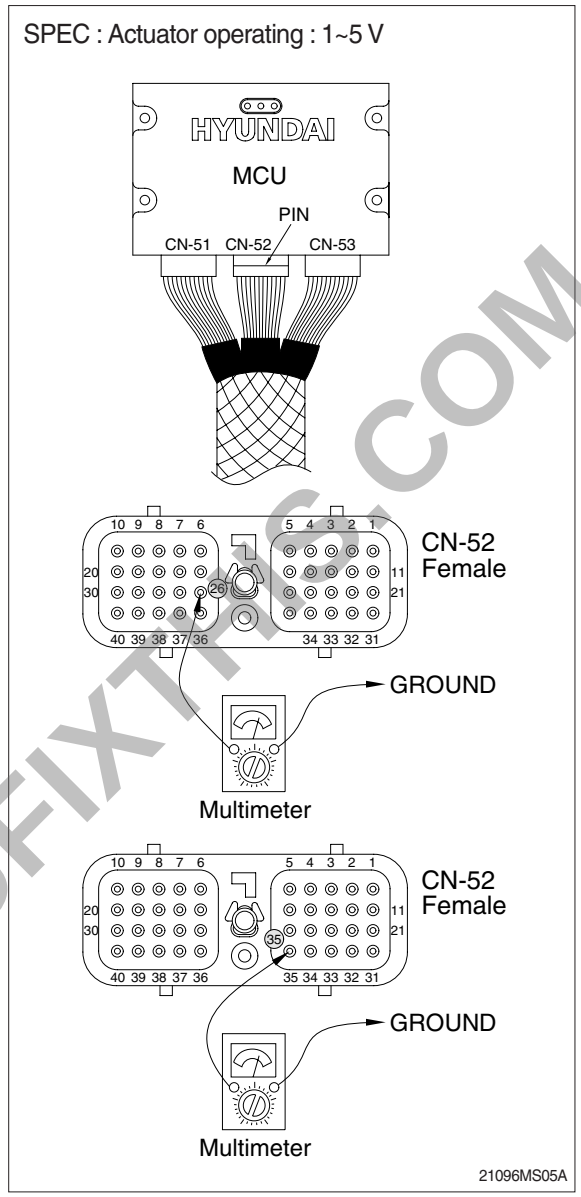
(2) Test 8 : Check voltage at CN-52(35)and ground.

① Prepare 1 piece of thin sharp pin, steel or copper

② Insert prepared pin to rear side of connectors : One pin to (35) of CN-52.

③ Starting key ON.

④ Check voltage as figure.



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4) SWING SPEED

(1) Measure the time required to swing three complete turns.

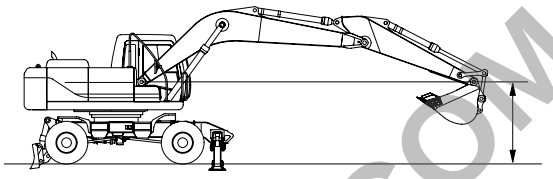
(2) Preparation

① Check the lubrication of the swing gear and swing bearing.

② Place the machine on flat, solid ground with ample space for swinging. Do not conduct this test on slopes.

③ With the arm rolled out and bucket rolled in, hold the bucket so that the height of the bucket pin is the same as the boom foot pin. The bucket must be empty.

④ Keep the hydraulic oil temperature at 50±5˚C.



20W97MS05

(3) Measurement

① Select the following switch positions.

· Power mode switch : P mode

② Operate swing control lever fully.

③ Swing 1 turn and measure time taken to swing next 3 revolutions.

④ Repeat steps ② and ③ three time and calculate the average values.

(4) Evaluation

The time required for 3 swings should meet the following specifications.

Unit : Seconds / 3 revolutions

Model	Power mode switch	Standard	Maximum allowable
R210W-9	P mode	16.4±1.5	20.5

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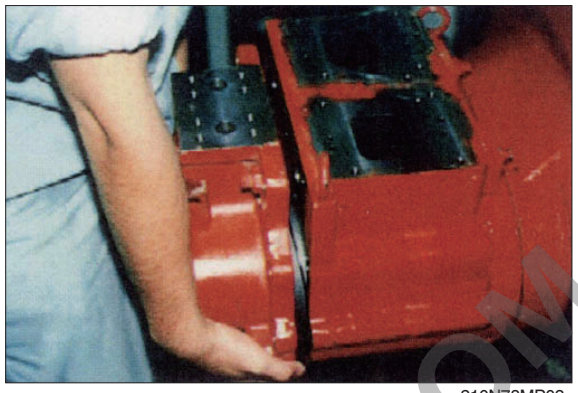
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(7) Place pump horizontally on workbench and separate pump casing (271) and valve cover (312).

※ Remove valve cover carefully at this work because it is heavy (about 29 kg).

※ There are two spring pins for fixing position between pump casing and valve cover. Since they have a tight fit, remove valve cover upright with respect to drive shaft (111) and driven shaft (113), while lightly tapping the valve cover with a plastic hammer.

※ Take care not to damage fitting surfaces between pump casing and valve cover. Take care not to drop valve plates (313, 314), check valve subassemblies (541, 543, 545), O-rings (735) and seat packing (752) in removing valve cover.



210N78MP03

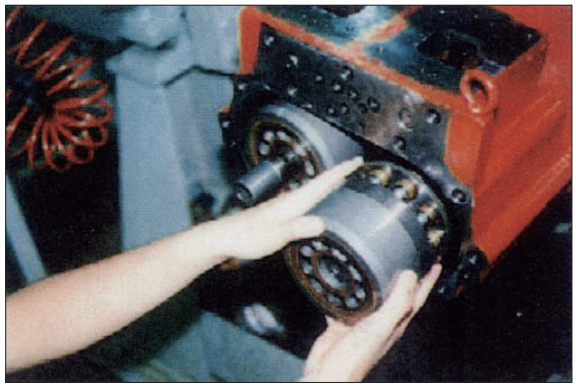
(8) If necessary, remove needle bearings (124) from valve cover (312).

※ Do not remove needle bearings as far as possible, except when it is considered to be out of its life span.

※ Do not loosen hexagon nut (807) of the valve cover. If loosened, flow setting will be changed.

(9) Pull cylinders out of pump casing (271) straightly over drive shaft (111) and driven shaft (113). Pull out also pistons (151), set plate (153), spherical bushing (156) and cylinder springs (157) simultaneously.

※ Take care not to damage sliding surfaces of cylinder, spherical bush, shoes, swash plate, and so on.



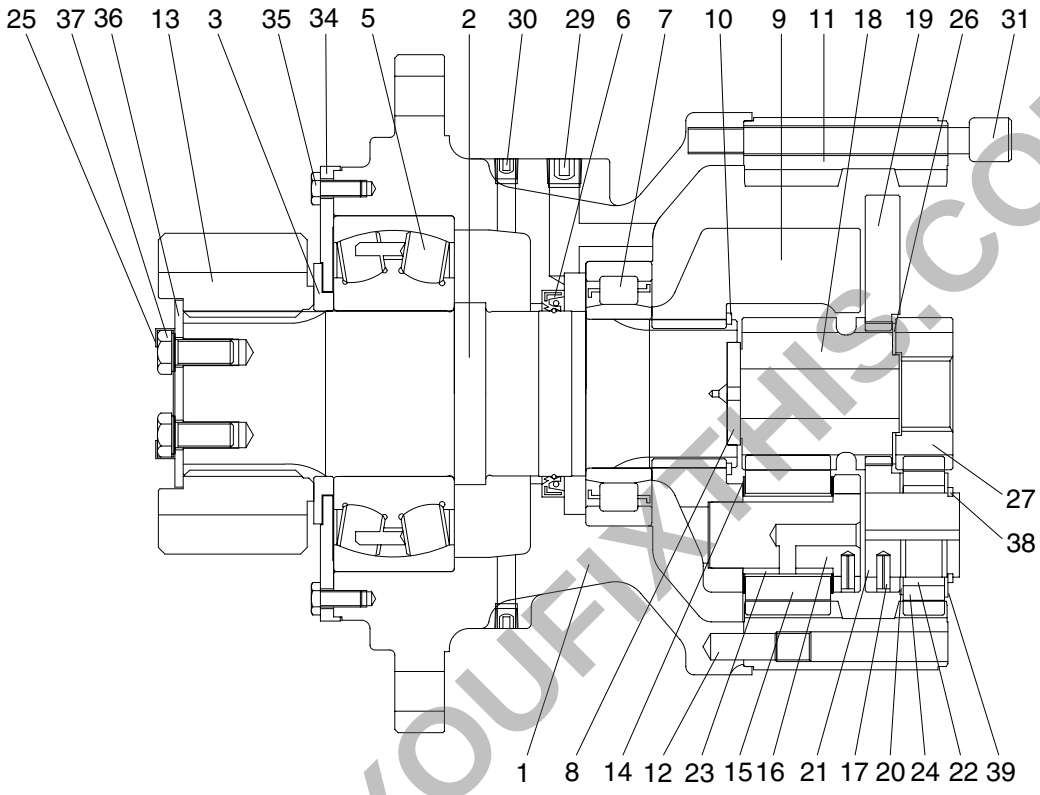
210N78MP04

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4. DISASSEMBLY AND ASSEMBLY OF REDUCTION GEAR

1) STRUCTURE



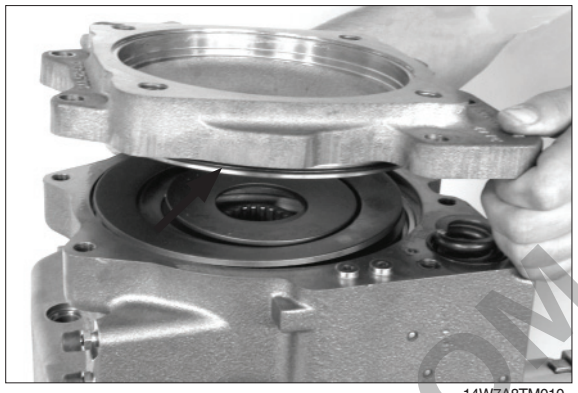
21092SM03

1	Casing	14	Thrust washer	26	Side plate 3
2	Drive shaft	15	Planet gear 2	27	Sun gear 1
3	Spacer	16	Pin & bushing	29	Plug
5	Roller bearing	17	Spring pin	30	Plug
6	Oil seal	18	Sun gear 2	31	Socket bolt
7	Roller bearing	19	Carrier 1	34	Cover plate
8	Thrust plate 3	20	Side plate 1	35	Hexagon bolt
9	Carrier 2	21	Pin 1	36	Lock plate
10	Stop ring	22	Needle cage	37	Hexagon bolt
11	Ring gear	23	Bushing 2	38	Stop ring
12	Knock pin	24	Planet gear 1	39	Side plate 2
13	Pinion gear	25	Lock washer		

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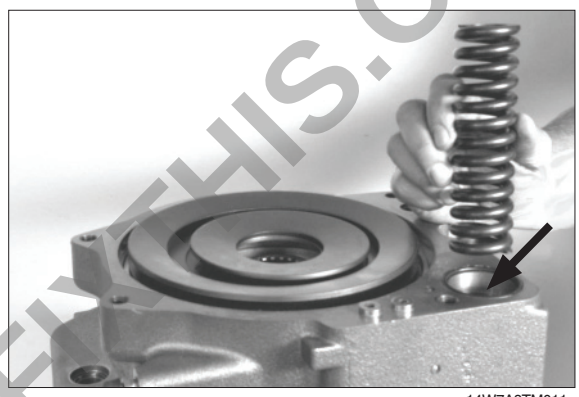
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(9) Take off the input housing and remove the O-ring (arrow).



14W7A8TM010

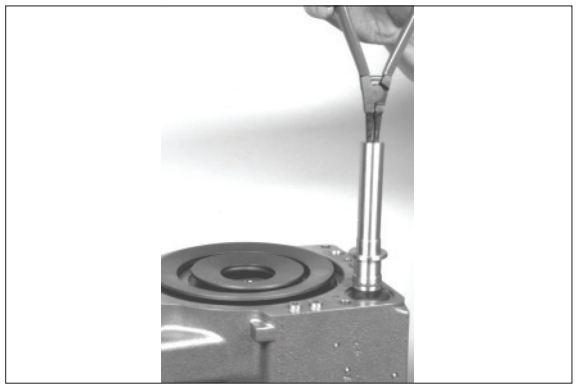
(10) Modulation valve :
Remove the compression spring and the O-ring (arrow).



14W7A8TM011

(11) Pull the complete piston out of the bore.

(S) Set of external pliers 5870 900 015



14W7A8TM012

(12) Remove the cup springs from the brake.



14W7A8TM013

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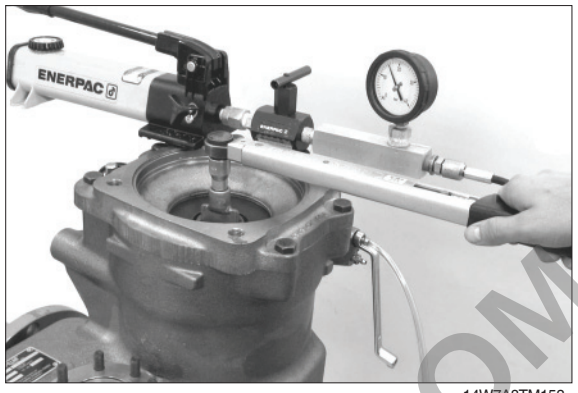
(78) Closing pressure test (Cup spring preloading force) :

※ When measuring the closing pressure the valve block is not allowed to be attached to the transmission due to the by-pass function between brake and clutch.

Connection AK (see figure TM149 re-spectively) open (not closed and tank connection respectively).

Reduce the pressure slowly, when pressure range 11.2~9.2 kgf/cm^2 (closing pressure) is reached, the input shaft has to be locked at a tightening torque of 5.1 kgf · m (36.9 lbf · ft).

(S) Spline mandrel	5870 510 039
(S) Torque spanner	5870 203 037



14W7A8TM153

(79) Multi-disc clutch :

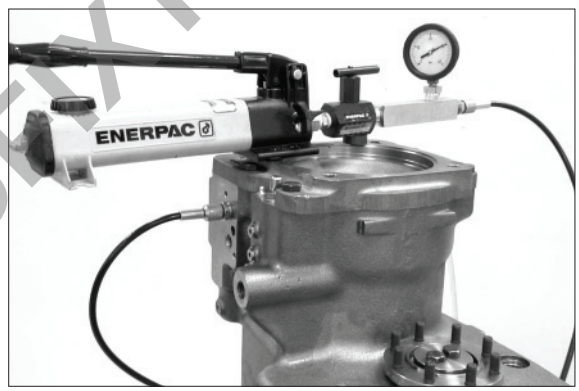
Connect the HP-pump (AK-see figure TM149),

Build up a pressure of P = 30.6~35.7 kgf/cm^2

-Bleed the pressure chamber (several times). Close the shut-off valve.

During a test duration of 3 minutes no measurable pressure drop is allowed.

(S) HP-pump	5870 287 007



14W7A8TM154

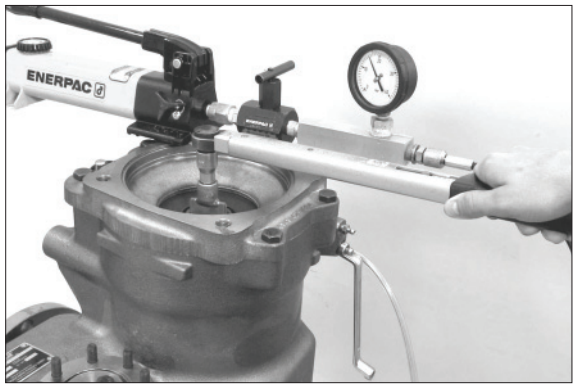
(80) Closing pressure test (cup spring preloading force) :

When measuring the closing pressure the valve block (only for the version with mounted electric downshift interlock) is not allowed to be attached to the transmission due to the by-pass function between brake and clutch.

Connection AB (see figure TM149 re-spectively) open (not closed and tank connection respectively).

Reduce the pressure slowly, when pressure range 15.8~13.8 kgf/cm^2 (closing pressure) is reached, the input shaft has to be locked at a tightening torque of 5.1 kgf · m (36.9 lbf · ft).

(S) Spline mandrel	5870 510 039



14W7A8TM155

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2. GENERAL INSTRUCTIONS

1) GENERAL WORKING INSTRUCTIONS

(1) This manual has been developed for the skilled serviceman, trained by the ZF-Passau.

(2) During all operations, pay attention to cleanliness and skilled working.
Therefore, axle removed from the machine, must be cleaned prior to open them.

(3) We assume that the special tools, specified by ZF, will be used.
The special tools are available from ZF-Passau.

(4) After the disassembly, all components must be cleansed, especially corners, cavities and recesses of housing and covers.

(5) The old sealing compound must be carefully removed.

(6) Check lubricating holes, grooves and pipes for free passage. They must be free of residues, foreign material or protective compounds.

(7) The latter refers especially to new parts.

(8) Parts which have been inevitably damaged in a disassembly operation, must be generally replaced by new ones, e.g. rotary seal rings, O-rings, U-section rings, cap boots, protective caps etc..

(9) Components such as roller bearings, thrust washers, synchronizing parts etc. which are subject to normal wear in automotive operation, must be checked by the skilled Serviceman.
He will decide if the parts can be reused.

(10) For the heating of bearings etc., hot plates, rod heaters or heating furnaces must be used.

(11) Never heat parts directly with the flame. An auxiliary solution would be to immerse the bearing in a vessel filled with oil, which is then heated with the flame.
In this way, damage to the bearings could be avoided.

(12) Ball bearings, covers, flanges and parts like that must be heated to about 90 to 100° C.

(13) Hot-mounted parts must be reset after cooling in order to assure a proper contact.

(14) Before pressing shafts, bearings etc. in position, both parts must be lubricated.

(15) During to reassembly, all specified adjustment values, testing specifications and tightening torque must be respected.

(16) After the repair, units are filled up with oil.

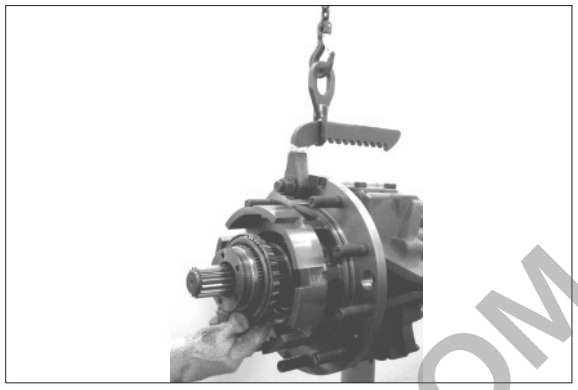
(17) After the oil filling, the oil level plugs and oil drain plugs must be tightened to the specified tightening torque.

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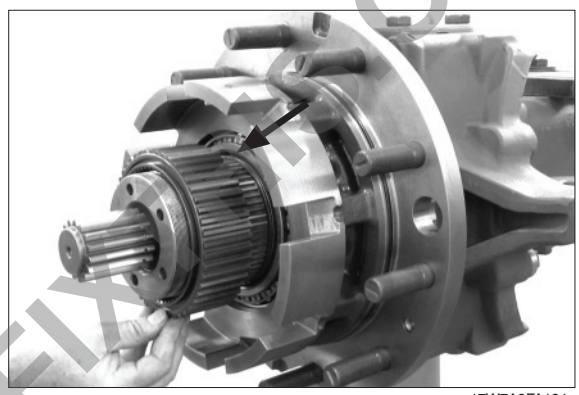
(28) Install preassembled hub until contact is obtained and fix with heated outer bearing inner ring

(S) Lifting bracket 5870 281 043



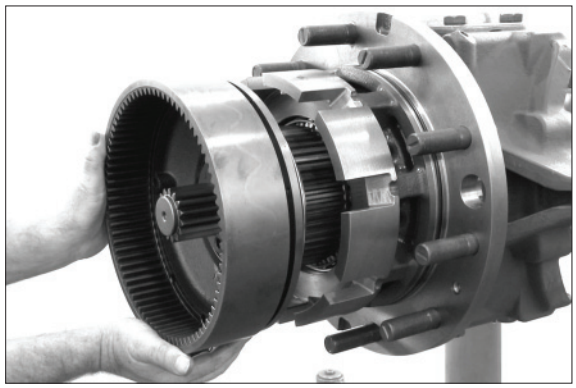
17W7A8FA133

(29) Oil O-rings and locate in annular groove (arrow) of knuckle housing.
Then install disc carrier.



17W7A8FA134

(30) Bring hub bearing into contact position (figure-FA135~FA137) :
Install ring gear (without sealing elements).



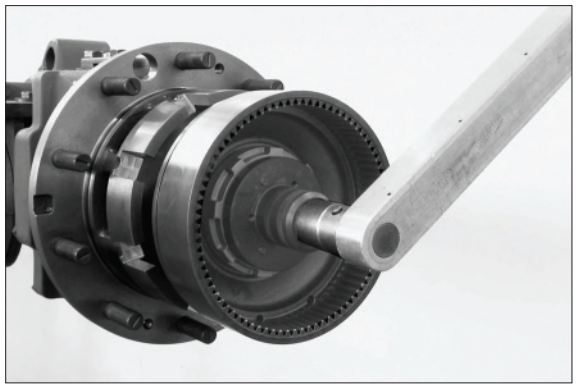
17W7A8FA135

(31) Bring hub bearing into contact position - for this purpose tighten slotted nut with a tightening torque of max. 1400Nm.

※ Apply lubricant to thread - knuckle housing / slotted nut.

※ While tightening the slotted nut rotate hub in both directions several times - roller setting.

(S) Socket spanner 5870 656 097



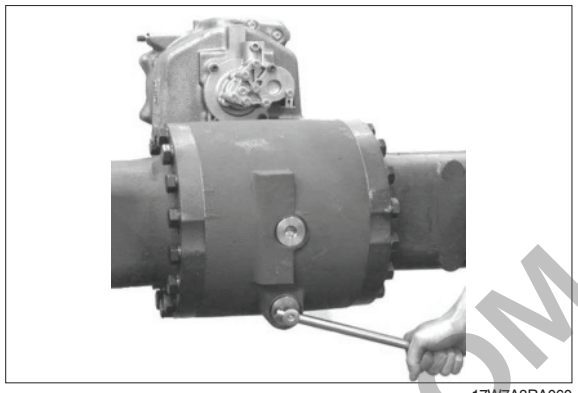
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5. DISASSEMBLY-DIFFERENTIAL / INPUT

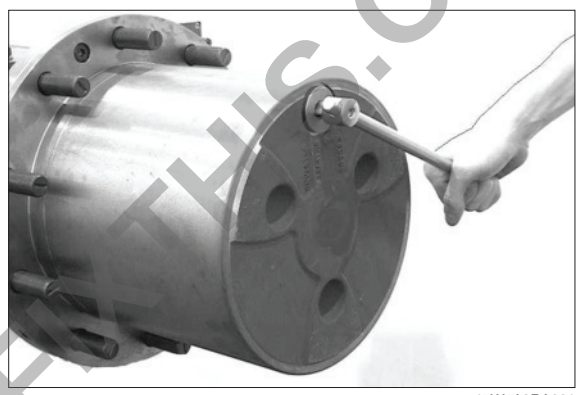
1) Loosen oil drain plug and drain oil from the axle
   - Use suitable collecting basin.



17W7A8RA060

2) To avoid injury when opening the oil drain and oil filler plug due to a possible pressure build-up in the oil system of the planetary carrier.
   - Bring drain hole to topmost position (12 o'clock) and carefully unscrew oil drain and oil filler plug.

   Then bring drain hole to lowermost position (6 o'clock) and drain oil from outputs - use suitable collecting basin.

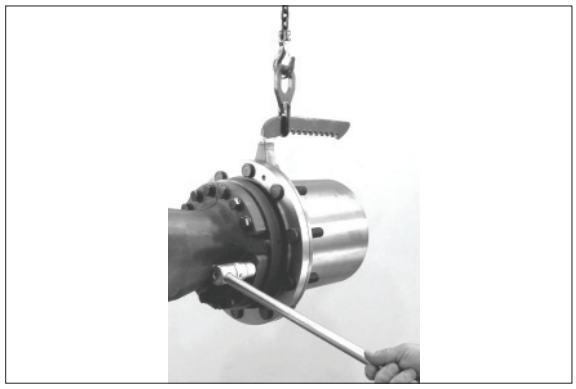


17W7A8RA061

3) When carrying out works on differential and/or input pinion, the output/s can be dismantled as complete unit (see figure RA062 and RA063).

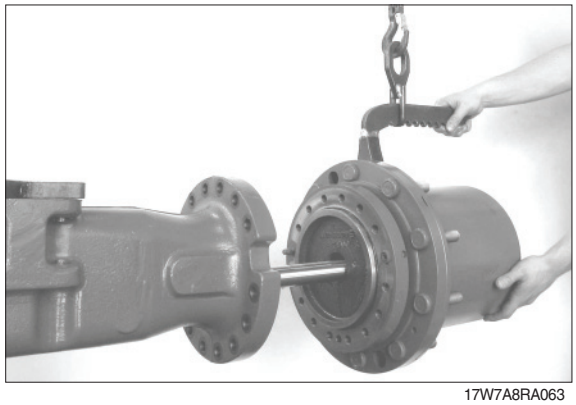
   Secure output assy by means of lifting bracket, loosen threaded joint.

   (S) Lifting bracket 5870 281 043



17W7A8RA062

4) Separate the output assy from the axle housing and pull the stub shaft.



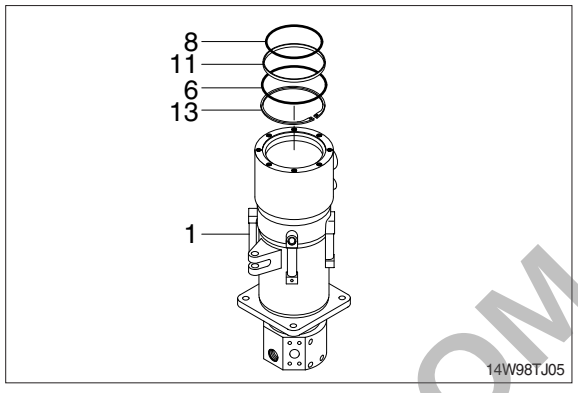
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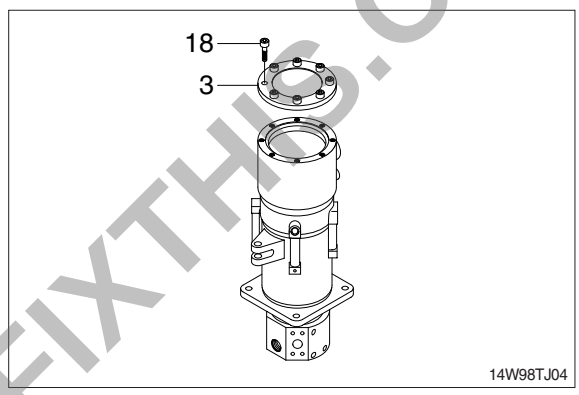
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(5) Fit retainer ring (13), O-ring (6) and wear ring (11) to shaft (2).

(6) Fit O-ring (8) to hub (1).



(7) Install cover (3) to hub and tighten bolts (18).
- Torque : 2.35±0.35 kgf · m
  (17.0±2.5 lbf · ft)



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