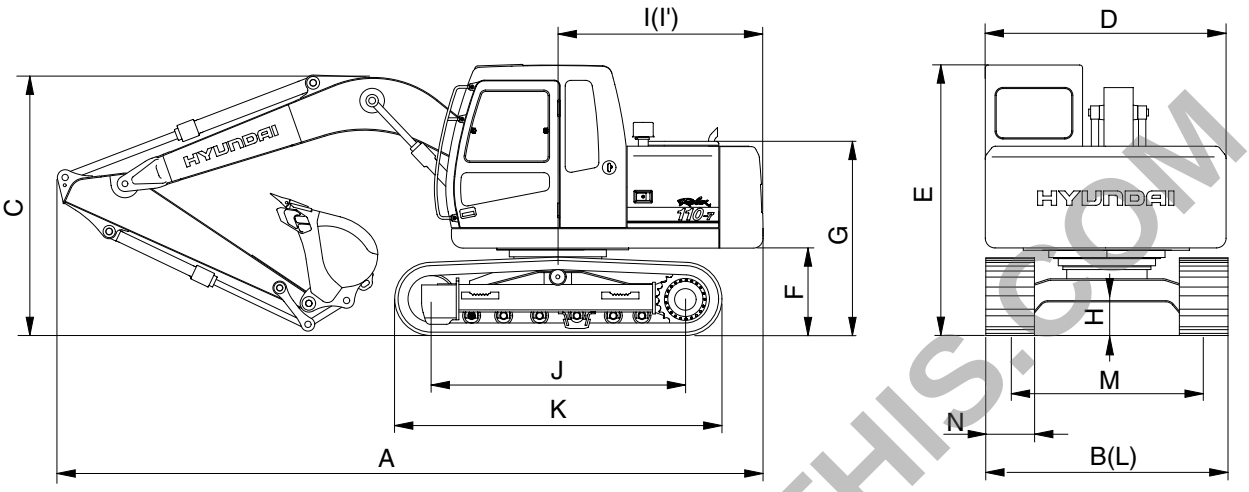
## 2. SPECIFICATIONS

### 1) R110-7

#### (1) 4.3m(14' 1") MONO BOOM, 2.26m(7' 5") ARM




11072SP02

| Description | | Unit | Specification |
|---|---|---|---|
| Operating weight | | kg(lb) | 11200(24690) |
| Bucket capacity(SAE heaped), standard | | $m^3(yd^3)$ | 0.45(0.59) |
| Overall length | A | mm(ft-in) | 7270(23' 10") |
| Overall width, with 500mm shoe | B | | 2490( 8' 2") |
| Overall height | C | | 2720( 8' 11") |
| Superstructure width | D | | 2475( 8' 1") |
| Overall height of cab | E | | 2800( 9' 2") |
| Ground clearance of counterweight | F | | 900( 2' 11") |
| Engine cover height | G | | 1990( 6' 6") |
| Minimum ground clearance | H | | 440( 1' 5") |
| Rear-end distance | I | | 2110( 6' 11") |
| Rear-end swing radius | I' | | 2130( 7' 0") |
| Distance between tumblers | J | | 2610( 8' 7") |
| Undercarriage length | K | | 3340(10' 11") |
| Undercarriage width | L | | 2490( 8' 2") |
| Track gauge | M | | 1990( 6' 6") |
| Track shoe width, standard | N | | 500(20") |
| Travel speed(Low/high) | | km/hr(mph) | 3.4/5.5(2.1/3.4) |
| Swing speed | | rpm | 13.0 |
| Gradeability | | Degree(%) | 35(70) |
| Ground pressure(500mm shoe) | | $kgf/cm^2(psi)$ | 0.39(5.55) |

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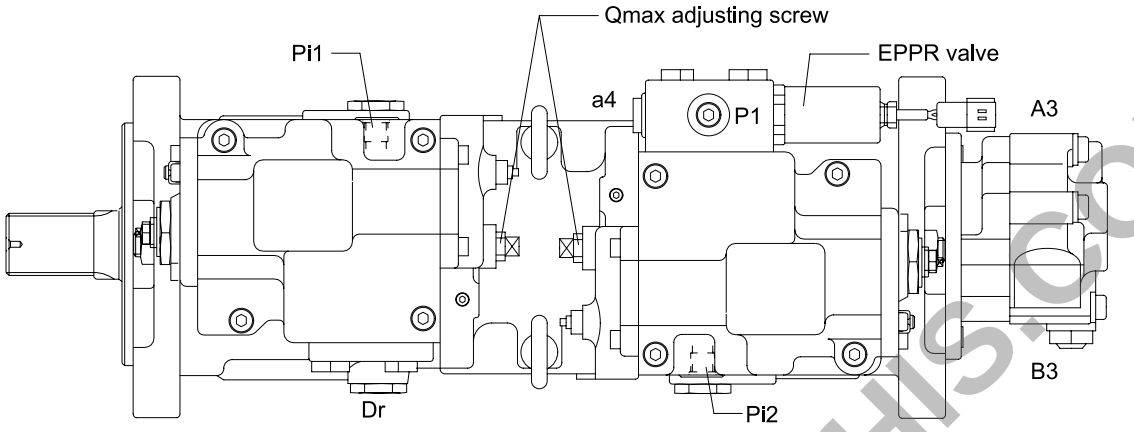


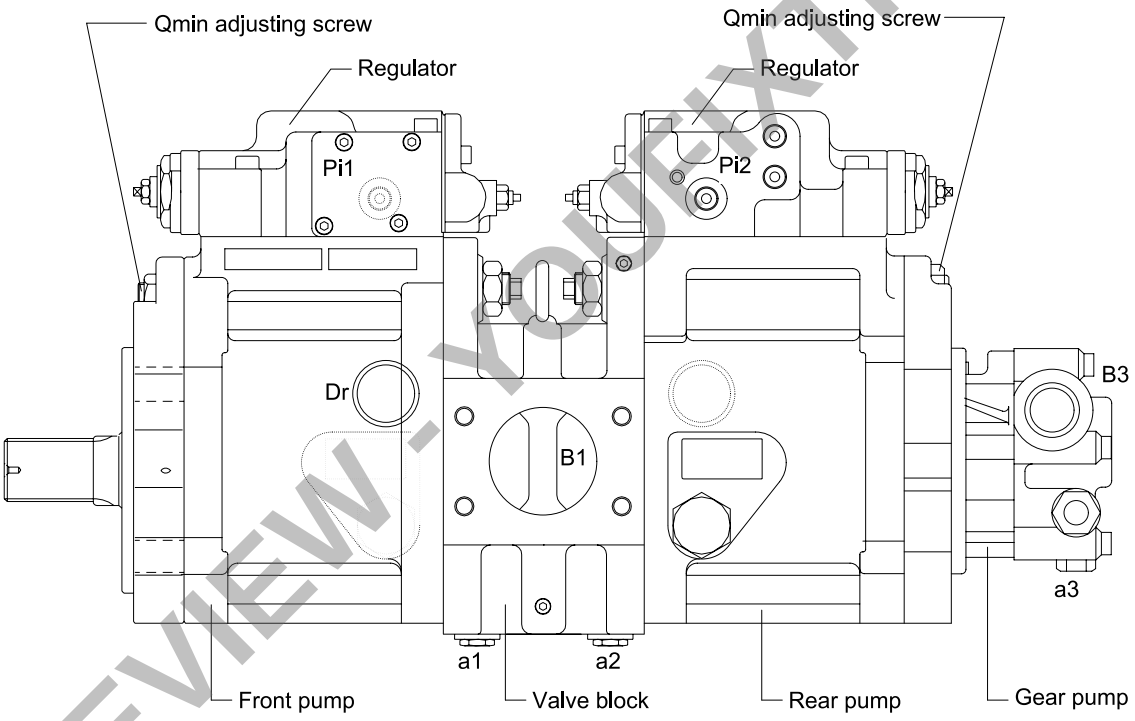
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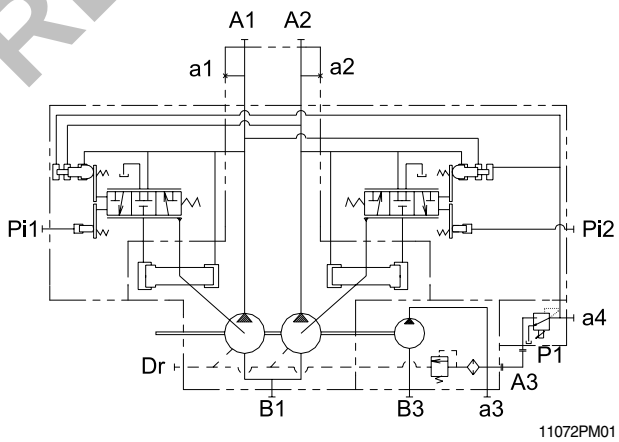
## GROUP 1 PUMP DEVICE

### 1. STRUCTURE

The pump device consists of main pump, regulator and gear pump.




11072PM01

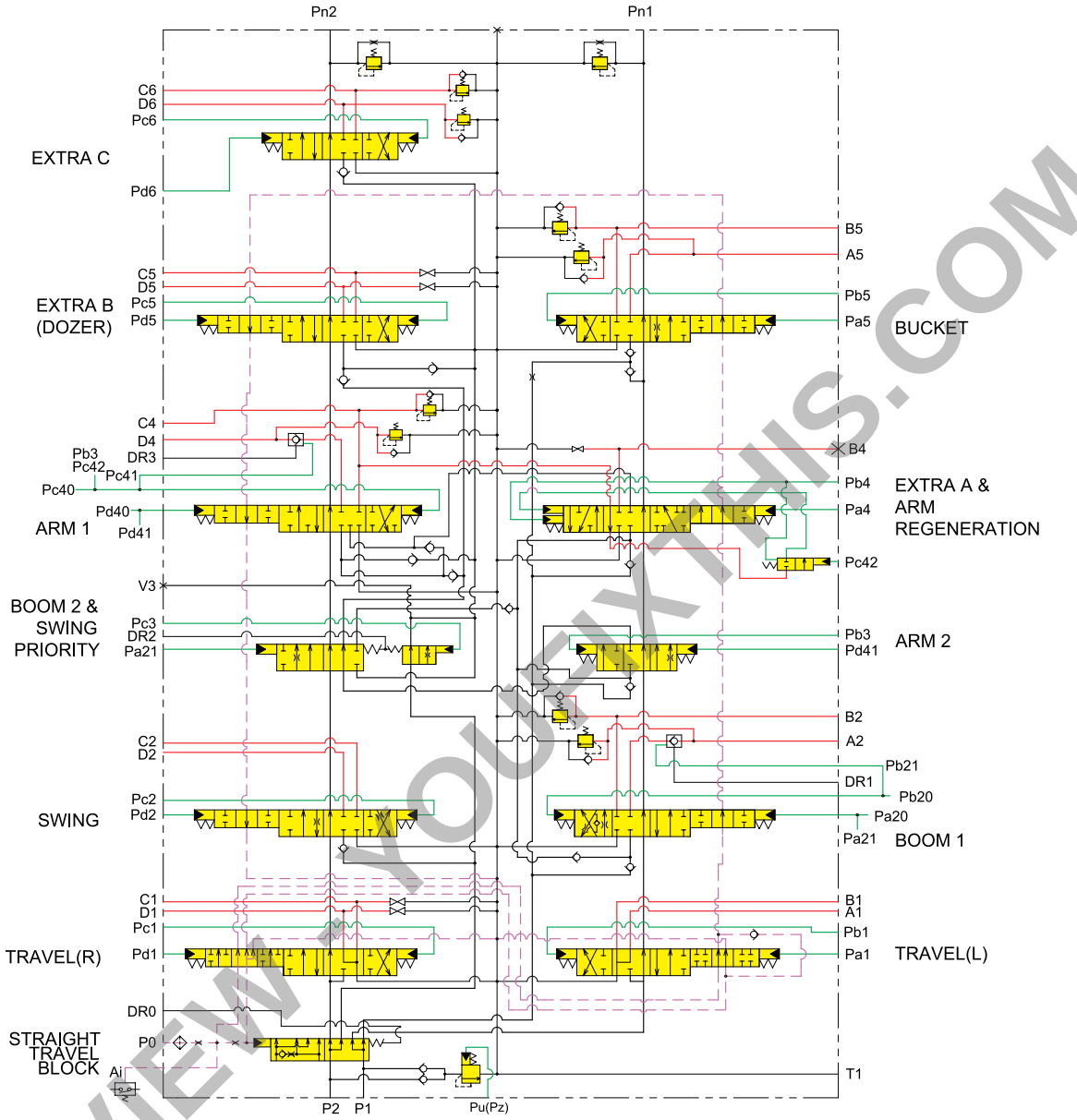
| Port | Port name | Port size |
|---|---|---|
| A1,2 | Delivery port | SAE6000psi 3/4" |
| B1 | Suction port | SAE2500psi 2 1/2" |
| Dr | Drain port | PF 1/2 - 19 |
| Pi1,i2 | Pilot port | PF 1/4 - 15 |
| P1 | EPPR port | PF 1/4 - 13 |
| a1,2 | Gauge port | PF 1/4 - 15 |
| a3 | Gauge port | PF 1/4 - 14 |
| a4 | Gauge port | PF 1/4 - 13 |
| A3 | Gear pump delivery port | PF 1/2 - 19 |
| B3 | Gear pump suction port | PF 3/4 - 20.5 |

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## 2. HYDRAULIC CIRCUIT

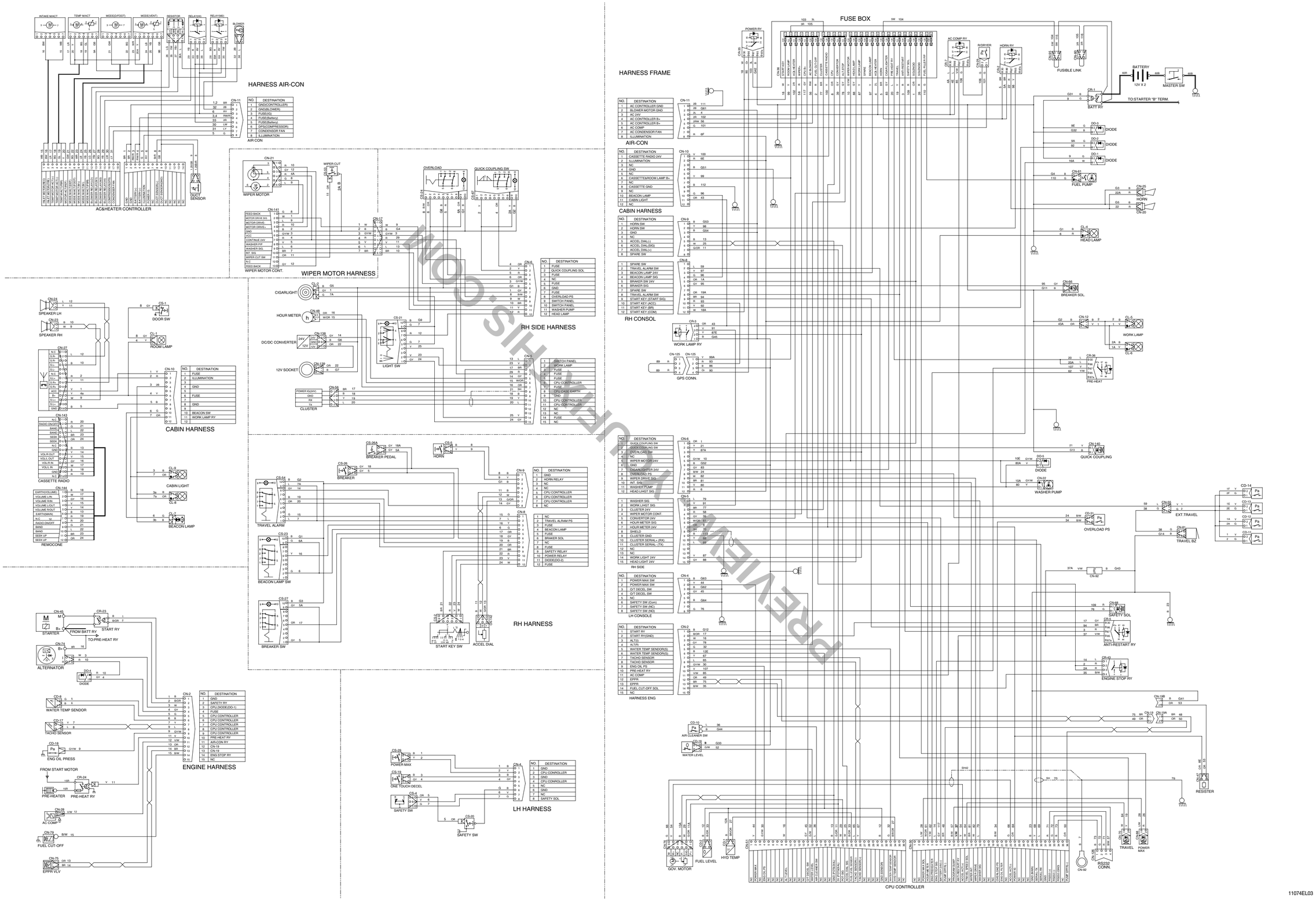



14072SF05

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11074EL03

## 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 : 100 ℓ

(5) Remove socket bolts(75) and disconnect pipe(74).

(6) Disconnect pilot line hoses(11, 13, 14, 35, 37,47).

(7) Remove socket bolts(67) and disconnect pump suction tube(5).

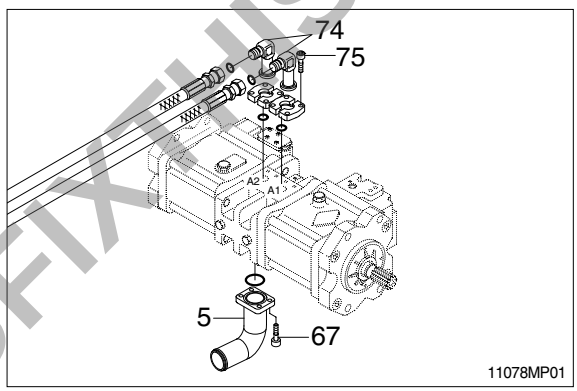
※ When pump suction tube is disconnected, the oil inside the piping will flow out, so catch it in oil pan.

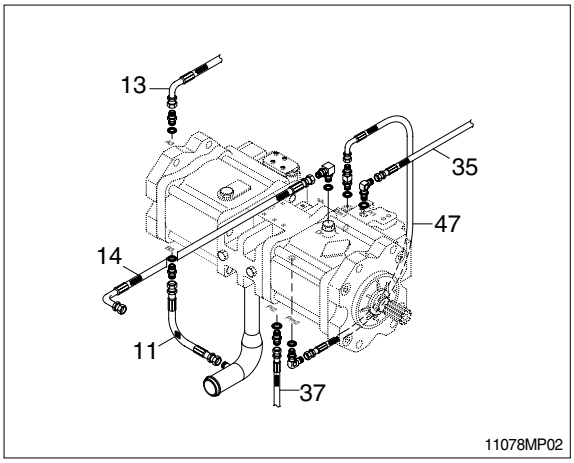
(8) Sling the pump assembly and remove the pump mounting bolts.

- Weight : 90kg(200lb)

※ 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(Engine-Bracket) | M12 × 1.75 | 10.0 ± 0.5 | 72.3 ± 3.6 |
| 2 | | Engine mounting bolt(Bracket-Frame, FR) | M16 × 2.0 | 55 ± 3.5 | 398 ± 25.3 |
| 3 | | Engine mounting bolt(Bracket-Frame, RR) | M20 × 2.5 | 30 ± 3.5 | 253 ± 25.3 |
| 4 | | Radiator mounting bolt, nut | M12 × 1.75 | 12.2 ± 1.3 | 88.2 ± 9.4 |
| 5 | | Coupling mounting bolt | M16 × 2.0 | 22.0 ± 1.0 | 159 ± 7.2 |
| 6 | Hydraulic system | Main pump mounting bolt | M16 × 2.0 | 22.1 ± 2.4 | 159 ± 17.3 |
| 7 | | Main control valve mounting bolt | M12 × 1.75 | 12.2 ± 1.3 | 88.2 ± 9.4 |
| 8 | | Fuel tank mounting bolt | M20 × 2.5 | 45 ± 5.1 | 325 ± 36.9 |
| 9 | | Hydraulic oil tank mounting bolt | M20 × 2.5 | 45 ± 5.1 | 325 ± 36.9 |
| 10 | | Turning joint mounting bolt, nut | M12 × 1.75 | 12.3 ± 1.3 | 88.2 ± 9.4 |
| 11 | Power train system | Swing motor mounting bolt | M16 × 2.0 | 29.6 ± 3.2 | 214 ± 23.1 |
| 12 | | Swing bearing upper mounting bolt | M18 × 2.0 | 41.3 ± 4.5 | 299 ± 32.5 |
| 13 | | Swing bearing lower mounting bolt | M16 × 2.0 | 29.7 ± 4.5 | 215 ± 32.5 |
| 14 | | Travel motor mounting bolt | M16 × 2.0 | 23 ± 2.5 | 166 ± 18.1 |
| 15 | | Sprocket mounting bolt | M16 × 2.0 | 29.7 ± 4.5 | 215 ± 32.5 |
| 16 | | Carrier roller mounting bolt, nut | M16 × 2.0 | 29.7 ± 4.5 | 215 ± 32.5 |
| 17 | Under carriage | Track roller mounting bolt | M16 × 2.0 | 29.7 ± 4.5 | 215 ± 32.5 |
| 18 | | Track tension cylinder mounting bolt | M16 × 2.0 | 29.7 ± 4.5 | 215 ± 32.5 |
| 19 | | Track shoe mounting bolt, nut | M16 × 1.5 | 42 ± 4 | 304 ± 28.9 |
| 20 | | Track guard mounting bolt | M16 × 2.0 | 29.7 ± 4.5 | 215 ± 32.5 |
| 21 | Others | Counter weight mounting bolt | M24 × 3.0 | 97.8 ± 10 | 707 ± 72.3 |
| 22 | | Cab mounting bolt, nut | M12 × 1.75 | 12.2 ± 1.3 | 88.2 ± 9.4 |
| 23 | | Operator's seat mounting bolt | M 8 × 1.25 | 1.17 ± 0.1 | 8.5± 0.7 |

※ For tightening torque of engine and hydraulic components, see each component disassembly and assembly.

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## 5. ERROR CODES TABLE

| Fault code No. | Description |
|---|---|
| 00 | No error |
| 01 | Short circuit in accel actuator motor system |
| 02 | Potentiometer circuit is shorted to Vcc(5V) or battery + |
| 03 | Short circuit in pump EPPR valve system |
| 05 | Short circuit in travel speed solenoid system |
| 10 | Short circuit in hour-meter system |
| 11 | Accel dial circuit is shorted to Vcc(5V) or battery + |
| 16 | Accel actuator motor circuit is open or shorted to ground |
| 17 | Potentiometer circuit is open or shorted to ground |
| 18 | Pump EPPR valve circuit is open or shorted to ground |
| 20 | Travel speed solenoid circuit is open or shorted to ground |
| 25 | Hour-meter circuit is open or shorted to ground |
| 26 | Accel dial circuit is open or shorted to ground |
| 31 | Engine preheater circuit is open or shorted to ground |
| 33 | Alternator circuit is open or shorted to ground |
| 34 | Actuator input voltage is below 18V |
| 35 | Actuator input voltage is over 38V |
| 36 | Communication error with cluster |
| 37 | Engine speed sensor circuit is open or shorted to ground |
| 40 | There is more than 500rpm difference between target speed and actual speed |
| 41 | Hydraulic oil temperature sensor circuit is shorted to ground |
| 42 | Fuel level sensor circuit is shorted to ground |
| 43 | Coolant temperature sensor circuit is shorted to ground |
| 45 | Hydraulic oil temperature sensor circuit is open or shorted to battery + |
| 46 | Fuel level sensor circuit is open or shorted to battery + |
| 47 | Coolant temperature sensor circuit is open or shorted to battery + |
| 49 | Engine preheater circuit is shorted to battery + |

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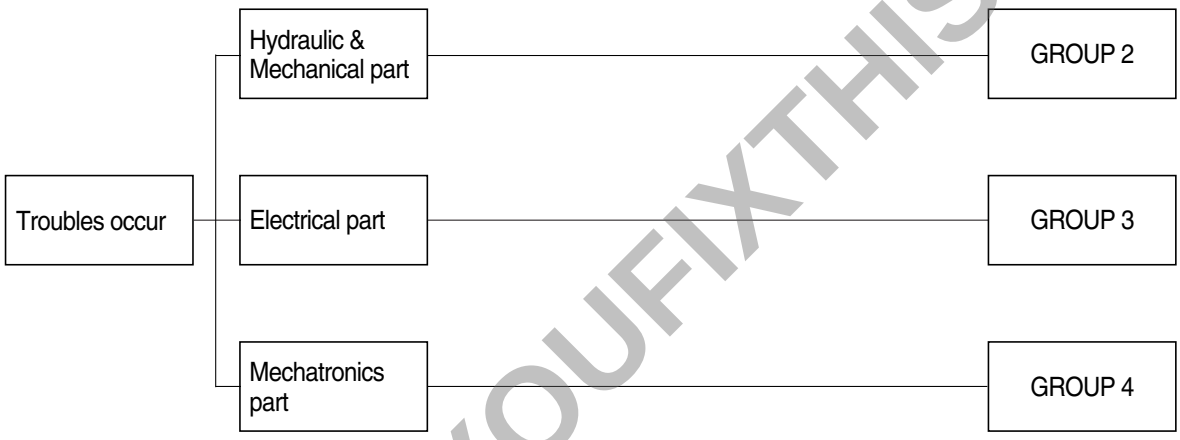
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# GROUP 1 BEFORE TROUBLESHOOTING

## 1. INTRODUCTION

When a trouble is occurred in the machine, this section will help an operator to maintain the machine with easy.

The trouble of machine is parted Hydraulic & Mechanical system, Electrical system and Mechatronics system. At each system part, an operator can check the machine according to the troubleshooting process diagram.




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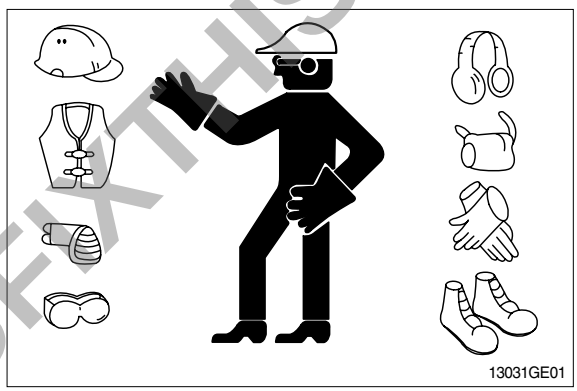
## GROUP 1 SAFETY

### FOLLOW SAFE PROCEDURE

Unsafe work practices are dangerous. Understand service procedure before doing work; Do not attempt shortcuts.

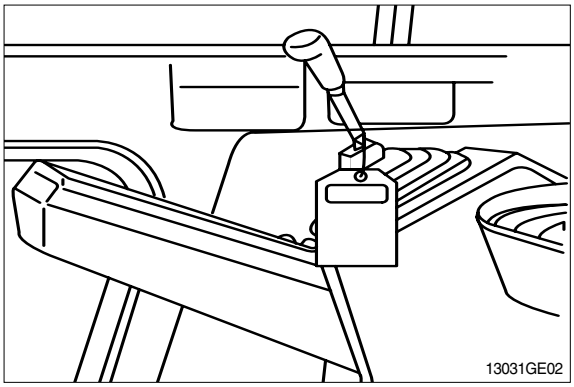
### WEAR PROTECTIVE CLOTHING

Wear close fitting clothing and safety equipment appropriate to the job.



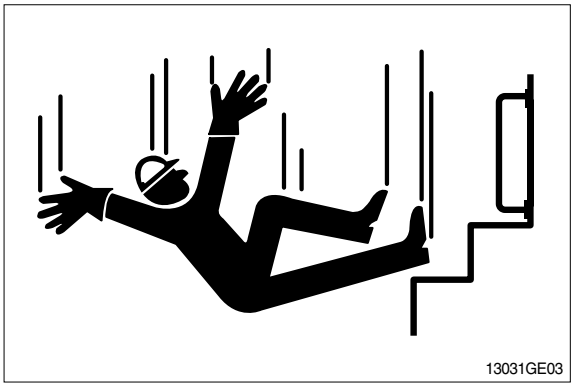

### WARN OTHERS OF SERVICE WORK

Unexpected machine movement can cause serious injury.
Before performing any work on the excavator, attach a 「**Do Not Operate**」 tag on the right side control lever.




### USE HANDHOLDS AND STEPS

Falling is one of the major causes of personal injury.
When you get on and off the machine, always maintain a three point contact with the steps and handrails and face the machine. Do not use any controls as handholds.
Never jump on or off the machine. Never mount or dismount a moving machine.
Be careful of slippery conditions on platforms, steps, and handrails when leaving the machine.






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Millimeters to inches

1mm = 0.03937in

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | 0.039 | 0.079 | 0.118 | 0.157 | 0.197 | 0.236 | 0.276 | 0.315 | 0.354 |
| 10 | 0.394 | 0.433 | 0.472 | 0.512 | 0.551 | 0.591 | 0.630 | 0.669 | 0.709 | 0.748 |
| 20 | 0.787 | 0.827 | 0.866 | 0.906 | 0.945 | 0.984 | 1.024 | 1.063 | 1.102 | 1.142 |
| 30 | 1.181 | 1.220 | 1.260 | 1.299 | 1.339 | 1.378 | 1.417 | 1.457 | 1.496 | 1.536 |
| 40 | 1.575 | 1.614 | 1.654 | 1.693 | 1.732 | 1.772 | 1.811 | 1.850 | 1.890 | 1.929 |
| 50 | 1.969 | 2.008 | 2.047 | 2.087 | 2.126 | 2.165 | 2.205 | 2.244 | 2.283 | 2.323 |
| 60 | 2.362 | 2.402 | 2.441 | 2.480 | 2.520 | 2.559 | 2.598 | 2.638 | 2.677 | 2.717 |
| 70 | 2.756 | 2.795 | 2.835 | 2.874 | 2.913 | 2.953 | 2.992 | 3.032 | 3.071 | 3.110 |
| 80 | 3.150 | 3.189 | 3.228 | 3.268 | 3.307 | 3.346 | 3.386 | 3.425 | 3.465 | 3.504 |
| 90 | 3.543 | 3.583 | 3.622 | 3.661 | 3.701 | 3.740 | 3.780 | 3.819 | 3.858 | 3.898 |

Kilogram to Pound

1kg = 2.2046lb

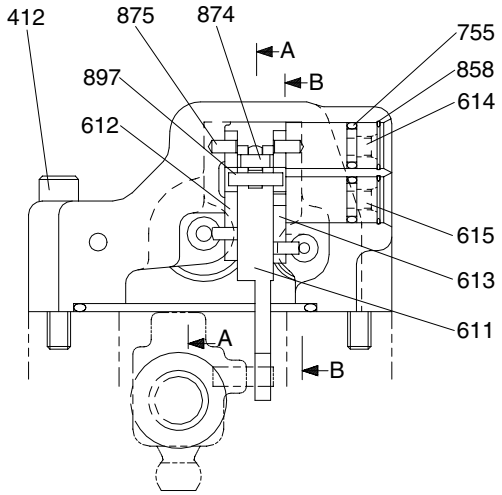
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | 2.20 | 4.41 | 6.61 | 8.82 | 11.02 | 13.23 | 15.43 | 17.64 | 19.84 |
| 10 | 22.05 | 24.25 | 26.46 | 28.66 | 30.86 | 33.07 | 35.27 | 37.48 | 39.68 | 41.89 |
| 20 | 44.09 | 46.30 | 48.50 | 50.71 | 51.91 | 55.12 | 57.32 | 59.5. | 61.73 | 63.93 |
| 30 | 66.14 | 68.34 | 70.55 | 72.75 | 74.96 | 77.16 | 79.37 | 81.57 | 83.78 | 85.98 |
| 40 | 88.18 | 90.39 | 92.59 | 94.80 | 97.00 | 99.21 | 101.41 | 103.62 | 105.82 | 108.03 |
| 50 | 110.23 | 112.44 | 114.64 | 116.85 | 119.05 | 121.25 | 123.46 | 125.66 | 127.87 | 130.07 |
| 60 | 132.28 | 134.48 | 136.69 | 138.89 | 141.10 | 143.30 | 145.51 | 147.71 | 149.91 | 152.12 |
| 70 | 154.32 | 156.53 | 158.73 | 160.94 | 163.14 | 165.35 | 167.55 | 169.76 | 171.96 | 174.17 |
| 80 | 176.37 | 178.57 | 180.78 | 182.98 | 185.19 | 187.39 | 189.60 | 191.80 | 194.01 | 196.21 |
| 90 | 198.42 | 200.62 | 202.83 | 205.03 | 207.24 | 209.44 | 211.64 | 213.85 | 216.05 | 218.26 |

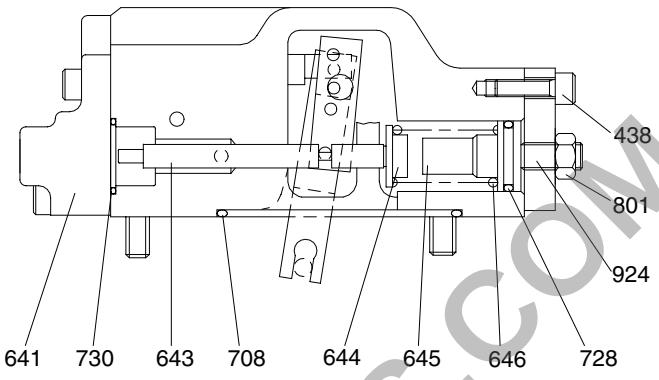
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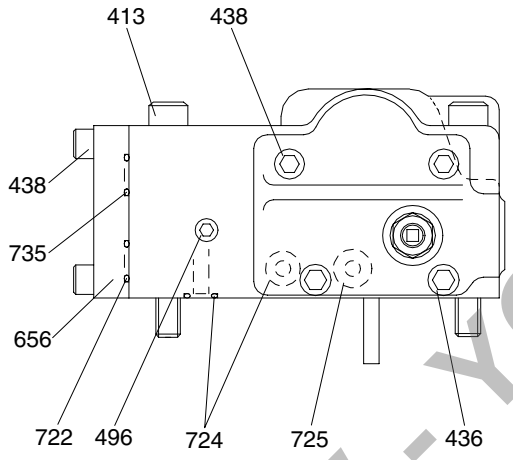
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## 2) REGULATOR(1/2)

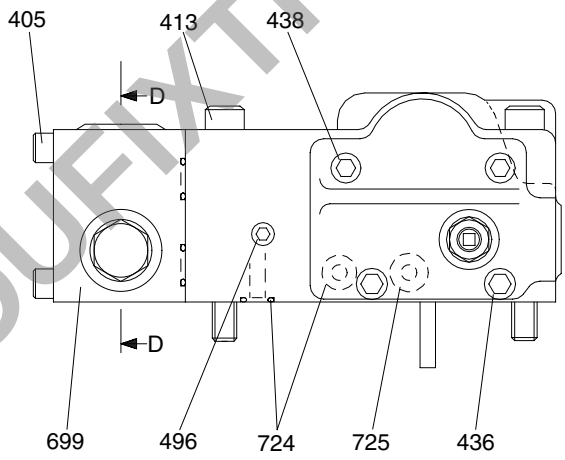


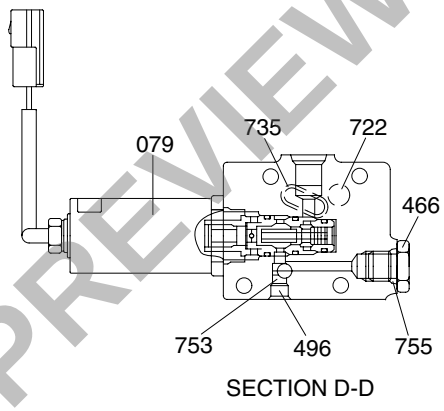

SECTION B-B



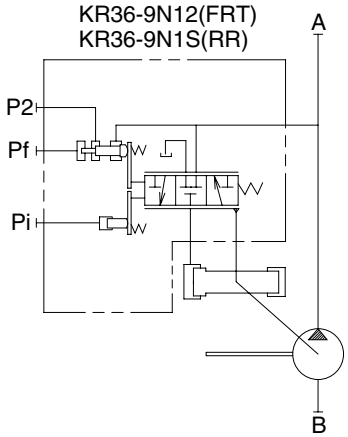

VIEW C(FRONT)




VIEW C(REAR)




SECTION D-D




| Port | Port name | port size |
|---|---|---|
| A | Delivery port | 3/4" |
| B | Suction port | 2 1/2" |
| Pn | Pilot port | PF 1/4-15 |
| Pm | Qmax cut port | PF 1/4-15 |

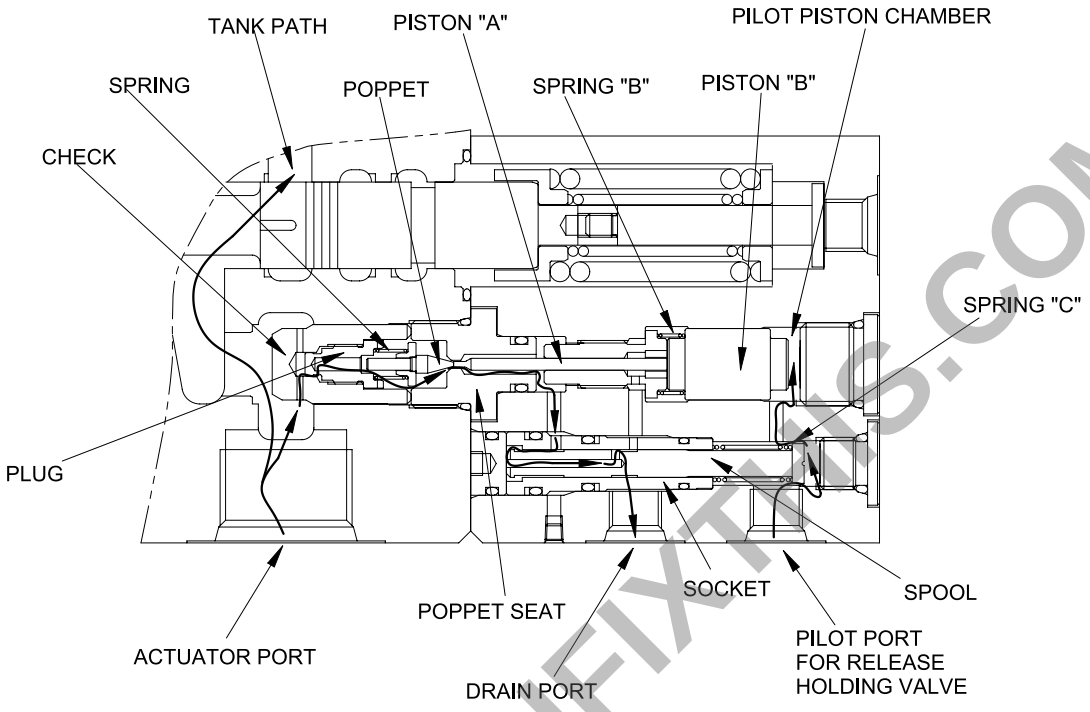
11072PM03

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② Release holding operation




14072SF31

The pilot pressure is supplied to the pilot port for release holding valve and shifts the piston "B" in the left direction against the spring "B", and shifts the poppet in the left direction through piston "B" and piston "A" against spring "B" and shifts the spool in the left side.

At same time, the return fluid from actuator returns to the drain port through the periphery hole of check, crevice of the check and the plug, the periphery hole of the plug, in side of holding valve, crevice of the poppet and the poppet seat, the periphery hole of the poppet seat, crevice of the socket and spool and inside of spool.

When the poppet is opened, pressure of inside of holding valve is decreased and the return fluid from actuator returns to the tank passage through the notch of spool.

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## CROSS SECTION

The construction of the pilot valve is shown in the attached cross section drawing. The casing has vertical holes in which reducing valves are assembled.

The pressure reducing section is composed of the spool(5), spring(7) for setting secondary pressure, return spring(10), stopper(9), spring seat(8) and shim(6). The spring for setting the secondary pressure has been generally so preset that the secondary pressure is 5 to 20.5kgf/cm$^2$(Depending on the type). The spool is pushed against the push rod(14) by the return spring.

When the push rod is pushed down by tilting the handle, the spring seat comes down simultaneously and changes setting of the secondary pressure spring.

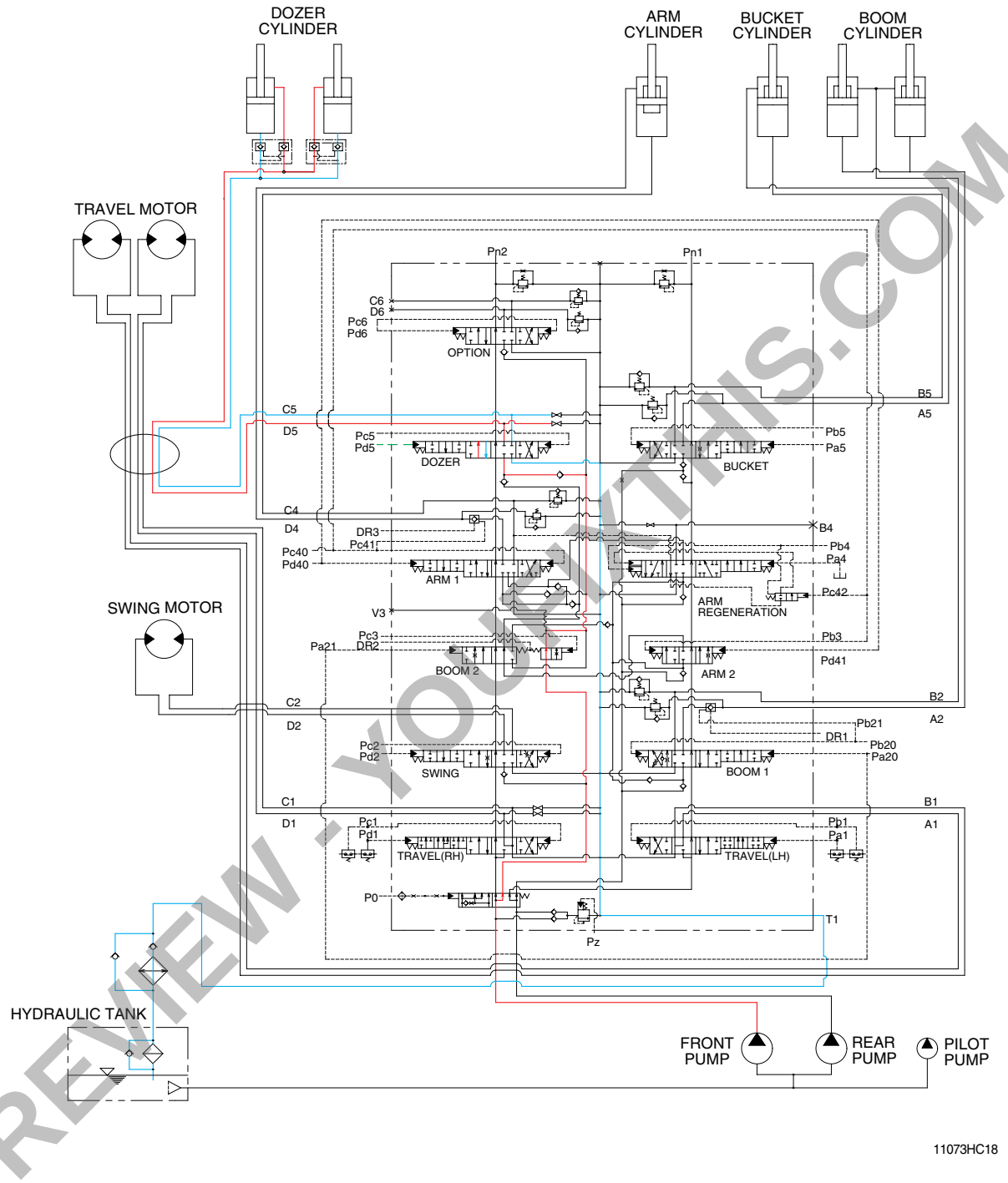
| | | | | | |
|---|---|---|---|---|---|
| 1 | Case | 12 | Rod seal | 22 | Handle connector |
| 2 | Plug | 13 | O-ring | 23 | Nut |
| 3 | Plug | 14 | Push rod | 24 | Insert |
| 4 | O-ring | 15 | Plate | 25 | Boot |
| 5 | Spool | 16 | Bushing | 26 | Handle |
| 6 | Shim | 17 | Joint assembly | 27 | Switch assembly |
| 7 | Spring | 18 | Swash plate | 28 | Screw |
| 8 | Spring seat | 19 | Adjusting nut | 29 | Switch assembly |
| 9 | Stopper | 20 | Lock nut | 30 | Switch cover |
| 10 | Spring | 21 | O-ring | 40 | Boot |
| 11 | Plug | | | | |

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## 9. DOZER UP OPERATION




When the dozer control lever is pulled back, the dozer spool in the main control valve is moved to the dozer up position by the pilot oil pressure from the remote control valve.

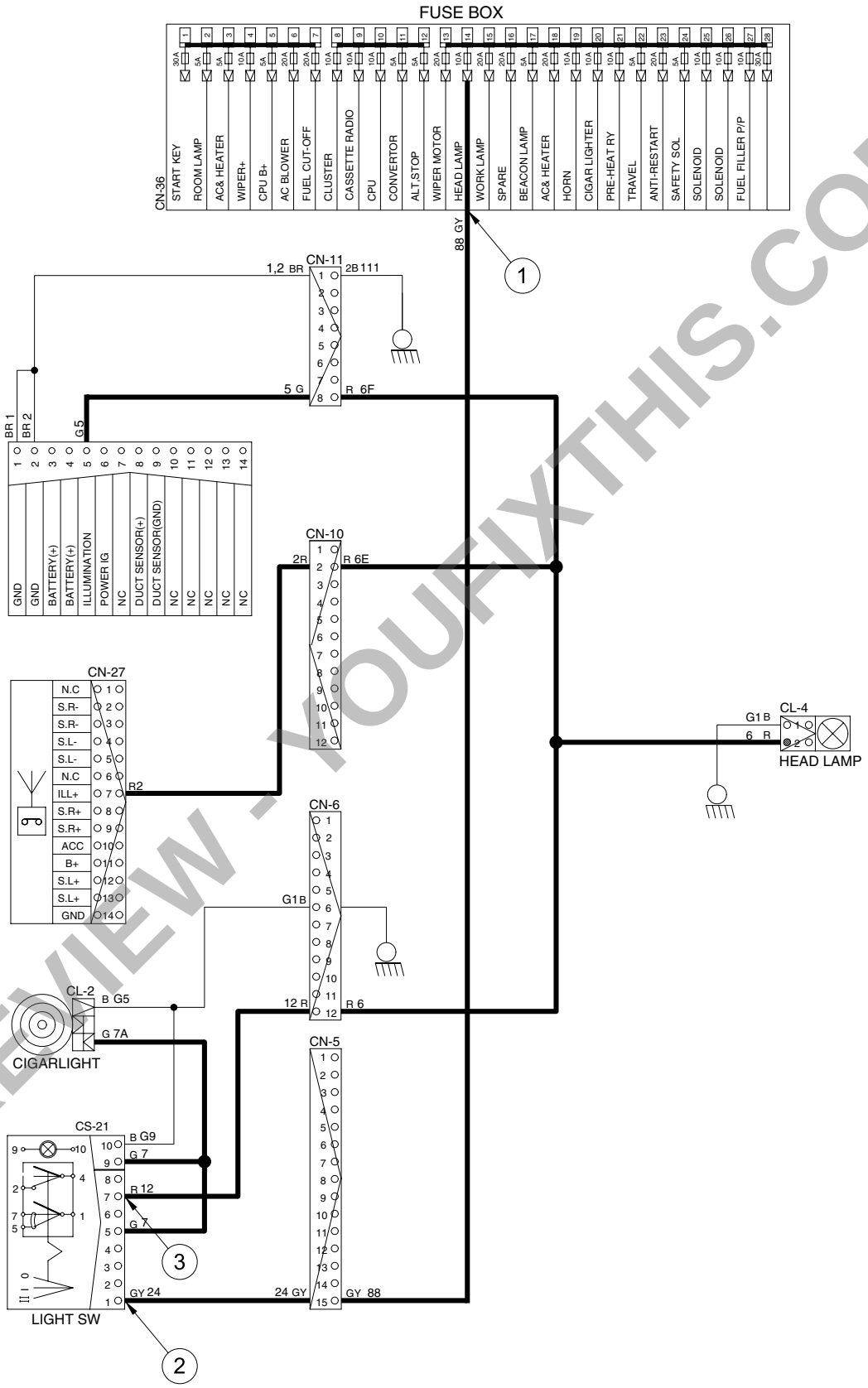
The oil from the rear pump flows into the main control valve and then goes to the small chamber of dozer cylinders.

At the same time, the oil from the large chamber of dozer cylinders returns to the hydraulic oil tank through the dozer spool in the main control valve. When this happens, the dozer goes up.



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# HEAD LAMP CIRCUIT



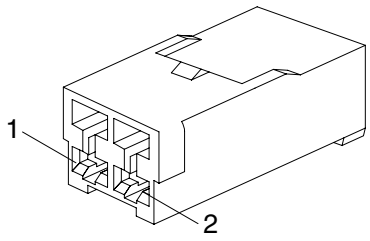

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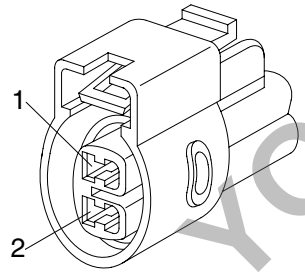
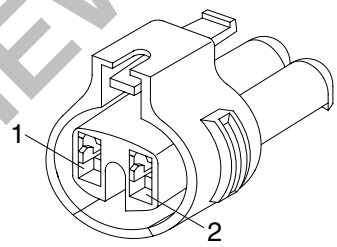


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### 11) KET 090 CONNECTOR

| No. of pin | Receptacle connector(Female) | Plug connector(Male) |
|---|---|---|
| 2 |  MG610070 | |

### 12) KET 090 WP CONNECTORS

| No. of pin | Receptacle connector(Female) | Plug connector(Male) |
|---|---|---|
| 2 |  MG640605 | |
| 2 |  MG640795 | |

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## 5. MONITORING DISPLAY

### 1) OUTLINE

Information of machine performance as monitored by the CPU controller can be displayed on the cluster when the operator selects a display mode by touching **SELECT** switch alone or with **BUZZER STOP** switch on the cluster as below.

| Display group | How to select display mode | | Name | Display on the cluster |
|---|---|---|---|---|
| | Group selection | Display mode selection | | |
| **Group 0** (Default) | Way 1 Key switch **ON** or **START** Way 2 Touch **WASHER** switch while pressing **BUZZER STOP** at group 1~4. | Initial | Engine rpm | 1750 rpm |
| | | Touch **SELECT** 1 time | Time | TIME 12:30 |
| | | Touch **SECLET** 2 times | Power shift pressure (EPPR valve) | EP:38 bar |
| | | Touch **SELECT** 3 times | CPU model & version | 11:C 1.0 |
| **Group 1** (Volt, temp, EPPR press, version) | Touch **SELECT** switch **once** while pressing **BUZZER STOP.** In this group **SELECT** LED **ON** | Default | Battery voltage(V) | b:24.8v |
| | | Touch **SELECT** 1 time | Potentiometer voltage(V) | Po: 2.5v |
| | | Touch **SELECT** 2 times | Accel dial voltage(V) | dL: 3.8v |
| | | Touch **SELECT** 3 times | Hydraulic oil temperature(°C) | Hd: 105℃ |
| | | Touch **SELECT** 4 times | Coolant temperature(°C) | Ct: 107℃ |
| **Group 2** (Error code) | Touch **SELECT** switch **twice** while pressing **BUZZER STOP.** In this group **BUZZER STOP** LED blinks | Default | Current error | CHECK Er: 03 |
| | | Touch **SELECT** 1 time | Recorded error (Only key switch ON) | TIME Er: 03 |
| | | Press down( ▼ ) & **SELECT** at the same time | Recorded error deletion (Only key switch ON) | TIME Er: 00 |
| **Group 3** (Switch input) | Touch **SELECT** switch **3 times** while pressing **BUZZER STOP.** In this group **SELECT** LED blinks at 0.5sec interval | Default | Power boost switch | Pb:on or oFF |
| | | Touch **SELECT** 1 time | One touch decel switch | od:on or oFF |
| | | Touch **SELECT** 2 times | Preheat switch | PH:on or oFF |
| | | Touch **SELECT** 3 times | Overload pressure switch | o l:on or oFF |
| **Group 4** (Output) | Touch **SELECT** switch **4 times** while pressing **BUZZER STOP.** In this group **SELECT** LED blinks at 1sec interval | Default | Hourmeter | Ho:on or oFF |
| | | Touch **SELECT** 1 time | Neutral relay (Anti-restart relay) | nr:on or oFF |
| | | Touch **SELECT** 2 times | Travel speed solenoid | SS:on or oFF |
| | | Touch **SELECT** 3 times | Power boost solenoid (2-stage relief solenoid) | PS:on or oFF |
| | | Touch **SELECT** 4 times | Preheat relay | PR:on or oFF |

※ By touching **SELECT** switch once while pressing **BUZZER STOP**, display group shifts.
Example : Group 0 → 1 → 2 → 3 → 4 → 0

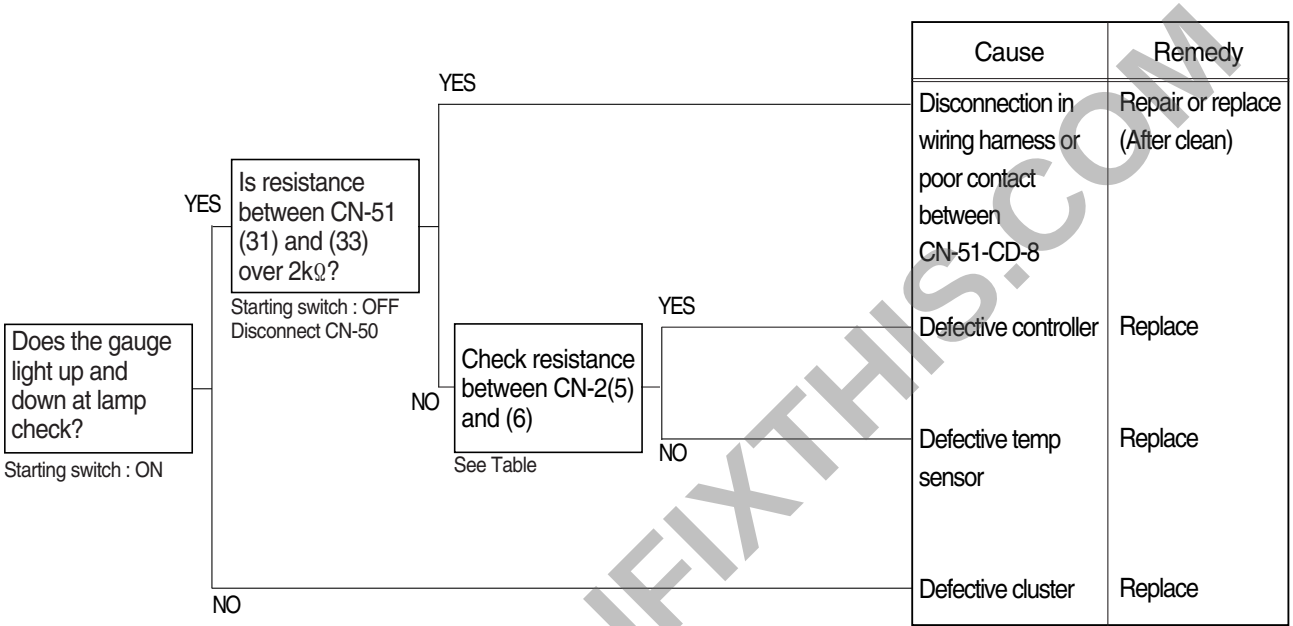
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## 9. WHEN COOLANT TEMPERATURE GAUGE DOES NOT OPERATE

- Before disconnecting the connector, always turn the starting switch OFF.
- Before carrying out below procedure, check all the related connectors are properly inserted.
- After checking, insert the disconnected connectors again immediately unless otherwise specified.

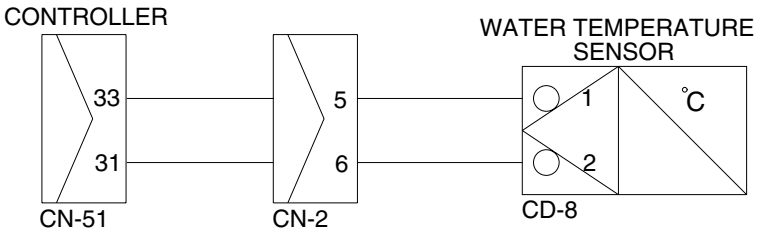






**Check Table**

| Item \ Temperature | White range (~29℃) | Green range (30~105℃) | Red range (105℃ ~) |
|---|---|---|---|
| Unit Resistance( Ω ) | 1646~ | 1645~158 | ~139 |
| Tolerance(%) | ±20 | ±20 | ±20 |




11076TS22

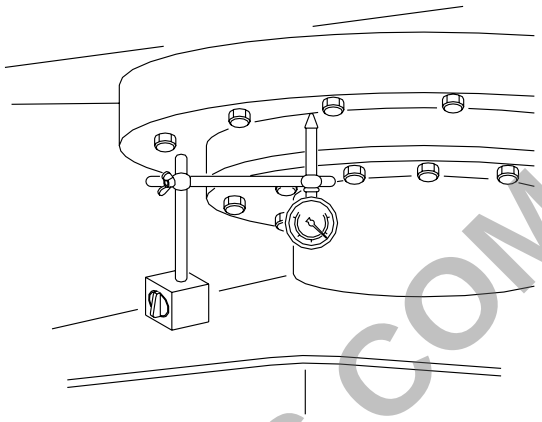
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## 8) SWING BEARING PLAY

(1) Measure the swing bearing play using a dial gauge to check the wear of bearing races and balls.



140LC-7 기타 7-10(1)

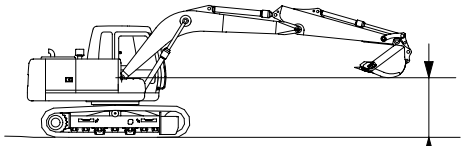
### (2) Preparation

① Check swing bearing mounting cap screws for loosening.
② Check the lubrication of the swing bearing. Confirm that bearing rotation is smooth and without noise.
③ Install a dial gauge on the track frame as shown, using a magnetic base.
④ Position the upperstructure so that the boom aligns with the tracks facing towards the front idlers.
⑤ Position the dial gauge so that its needle point comes into contact with the bottom face of the bearing outer race.
⑥ Bucket should be empty.

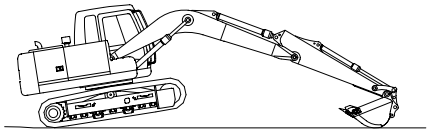
### (3) Measurement

① With the arm rolled out and bucket rolled in, hold the bottom face of the bucket to the same height of the boom foot pin.
Record the dial gauge reading(h1).
② Lower the bucket to the ground and use it to raise the front idler 50㎝.
Record the dial gauge reading(h2).
③ Calculate bearing play(H) from this data(h1 and h2) as follows.
H=h2-h1

Measurement : (h1)



Measurement : (h2)



11077MS09

### (4) Evaluation

The measured drift should be within the following specifications.

Unit : mm

| Model | Standard | Maximum allowable | Remarks |
|---|---|---|---|
| R110-7 | 0.5 ~ 1.5 | 3.0 | |

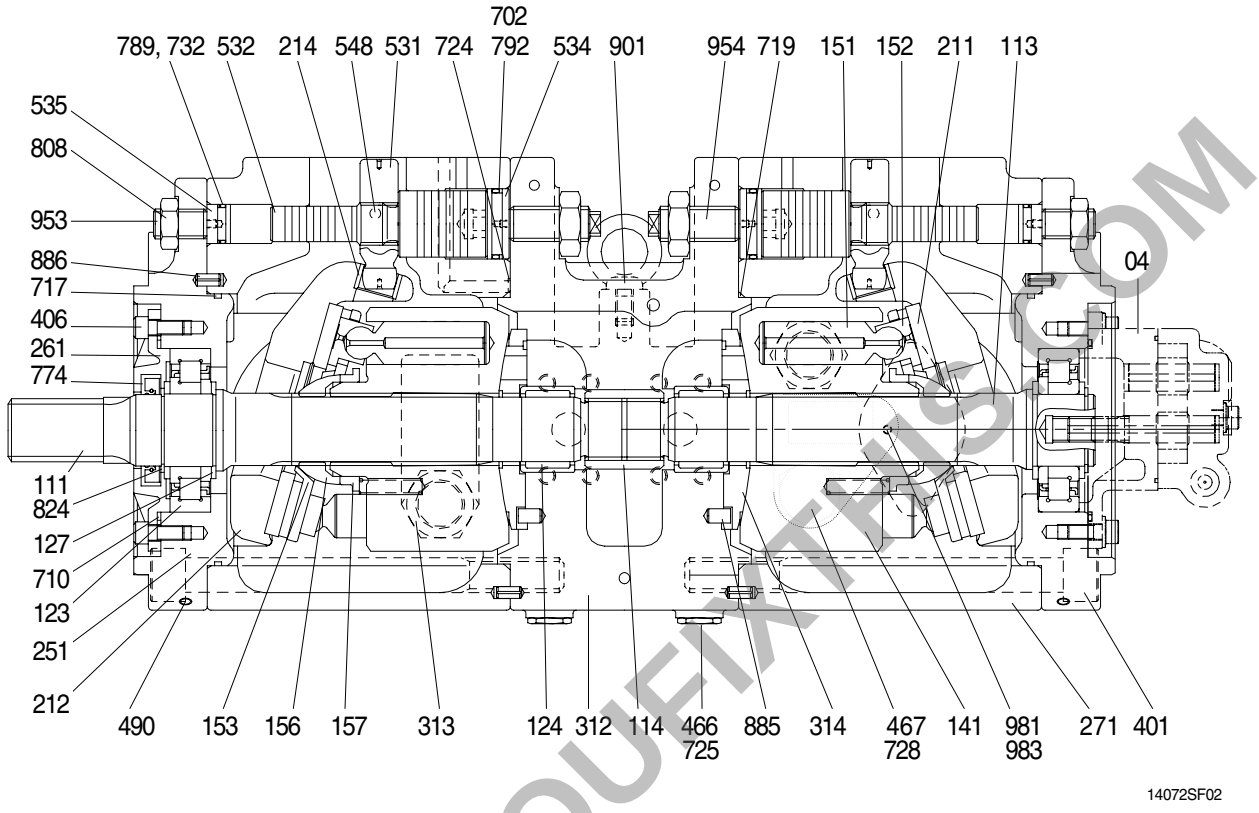
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## 2. MAIN PUMP(1/2)

### 1) STRUCTURE




| | | | | | |
|---|---|---|---|---|---|
| 04 | Gear pump | 271 | Pump casing | 719 | O-ring |
| 111 | Drive shaft(F) | 312 | Valve block | 724 | O-ring |
| 113 | Drive shaft(R) | 313 | Valve plate(R) | 725 | O-ring |
| 114 | Spline couping | 314 | Valve plate(L) | 728 | O-ring |
| 123 | Roller bearing | 401 | Hexagon socket bolt | 732 | O-ring |
| 124 | Needle bearing | 406 | Hexagon socket bolt | 774 | Oil seal |
| 127 | Bearing spacer | 466 | VP Plug | 789 | Back up ring |
| 141 | Cylinder block | 467 | VP Plug | 792 | Back up ring |
| 151 | Piston | 490 | Plug | 808 | Hexagon head nut |
| 152 | Shoe | 531 | tilting pin | 824 | Snap ring |
| 153 | Set plate | 532 | Servo piston | 885 | Pin |
| 156 | Bushing | 534 | Stopper(L) | 886 | Spring pin |
| 157 | Cylinder spring | 535 | Stopper(S) | 901 | Eye bolt |
| 211 | Shoe plate | 548 | Pin | 953 | Set screw |
| 212 | Swash plate | 702 | O-ring | 954 | Set screw |
| 214 | Bushing | 710 | O-ring | 981 | Plate |
| 251 | Support | 717 | O-ring | 983 | Pin |
| 261 | Seal cover(F) | | | | |

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### (6) Covers

① Fit spool covers to the non-spring assembly end of the spool, and tighten the hexagonal socket head bolts to the specified torque.
- Hexagon wrench : 5㎜
- Tightening torque : 1~1.1kgf · m(7.2~7.9lbf · ft)

※ Confirm that O-rings have been fitted.

② Fit spring covers to the spring end for the spools, and tighten hexagon socket head bolts to the specified torque.
- Hexagon wrench : 5㎜
- Tightening torque : 1~1.1kgf · m(7.2~7.9lbf · ft)

※ Confirm that O-rings have been fitted.

### (7) Holding valves

① Assemble the check, spring seat and poppet together into body.

② Tighten the poppet seat to the specified torque.
- Spanner : 26mm
- Tightening torque : 6~7kgf · m(43.4~50.6lbf · ft)

③ Fit the "piston A" under pilot cover with internal parts into hole on the poppet seat.

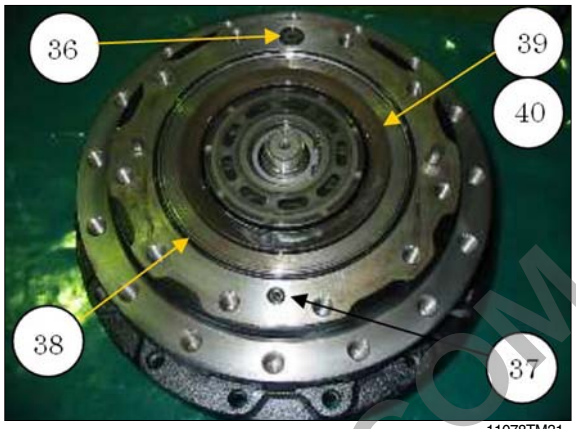
④ Tighten hexagon socket head bolt to specified torque.
- Hexagon wrench : 5mm
- Tightening torque : 1~1.1kgf · m(7.2~7.9lbf · ft)

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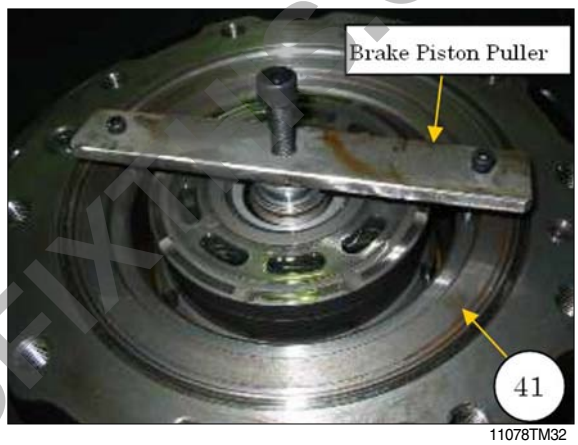
(21) Remove three O-rings(36)(37)(38), two disk springs(39), and shim(40) from the body casing.



11078TM31

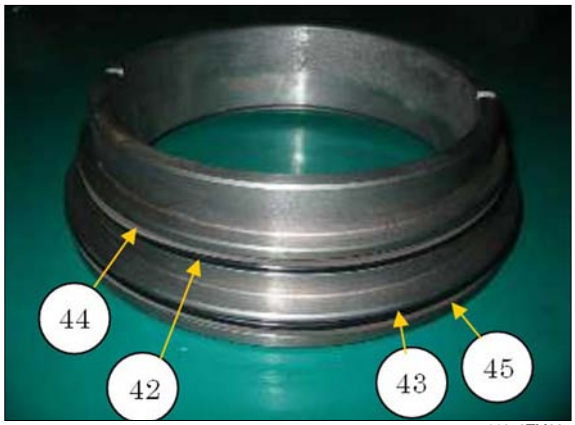
(22) Install tooling "Brake piston puller" as shown.

a. Screw-in two bolts to the brake piston.
b. Turn the center bolt little by little and let the center bolt push the shaft.
Then the brake piston comes out.
c. Remove brake piston(41).



11078TM32

(23) Remove O-rings(42)(43) and back-up rings(44)(45) from the brake piston.

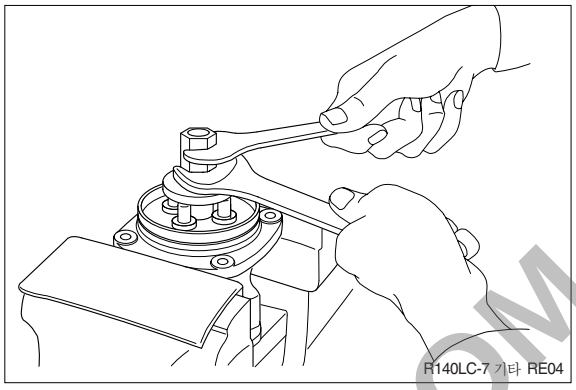


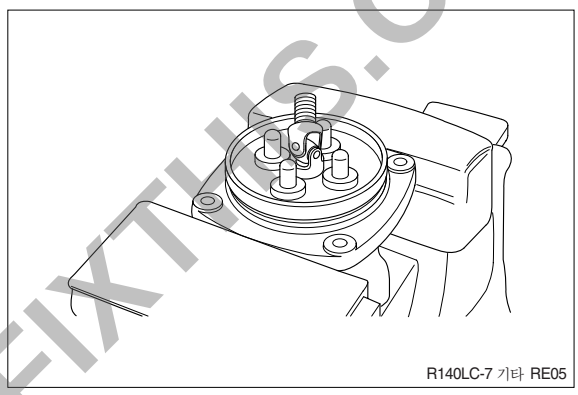
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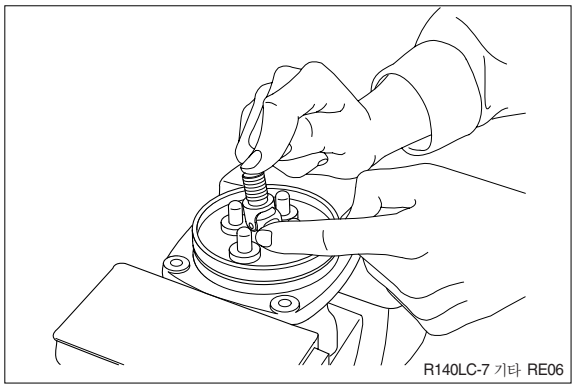
(6) Loosen adjusting nut(20) and plate(19) with spanners on them respectively, and remove them.

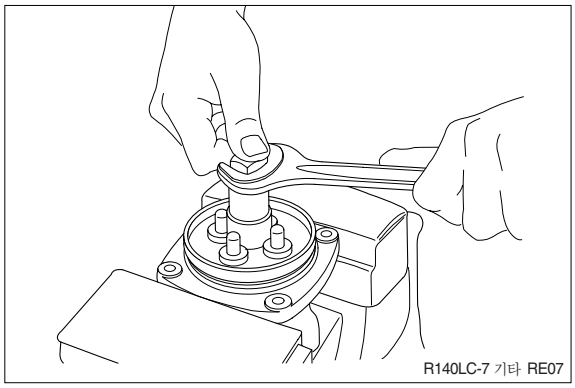

R140LC-7 기타 RE04


R140LC-7 기타 RE05

(7) Turn joint anticlockwise to loosen it, utilizing jig(Special tool).

※ When return spring(10) is strong in force, plate(16), plug(11) and push rod(14, 15) will come up on loosening joint. Pay attention to this.


R140LC-7 기타 RE06


R140LC-7 기타 RE07

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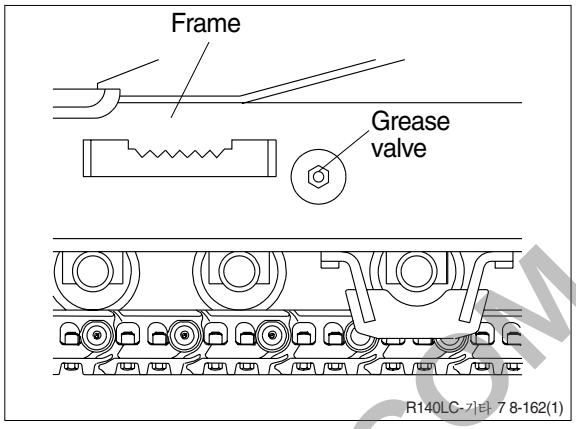


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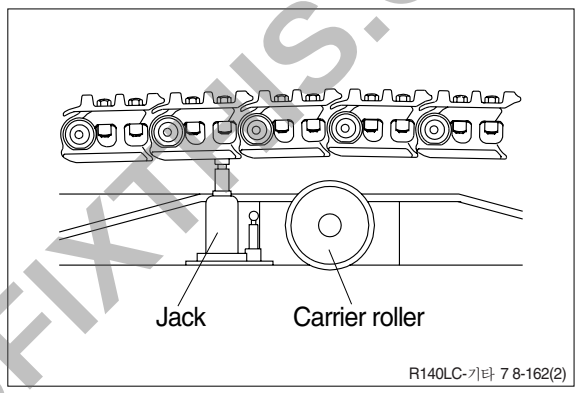
## 2. CARRIER ROLLER

### 1) REMOVAL

(1) Loosen tension of the track link.

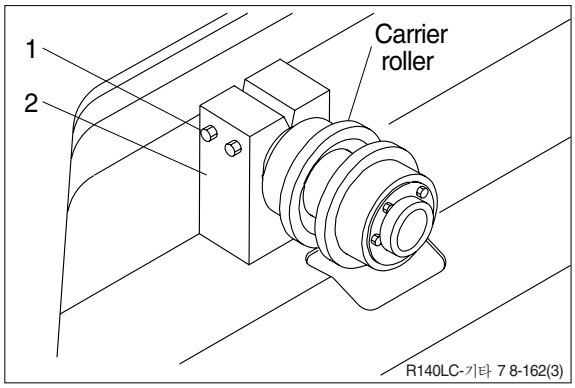



(2) Jack up the track link height enough to permit carrier roller removal.




(3) Loosen the lock nut (1).

(4) Open bracket(2) with a screwdriver, push out from inside, and remove carrier roller assembly.
- Weight : 13kg(29lb)




### 2) INSTALL

(1) Carry out installation in the reverse order to removal.

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