NEW HOLLAND

# COMPACT EXCAVATORS

# E50

## SERVICE MANUAL

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# 2.8 ENGINE SPECIFICATIONS

## 2.8.1 SPECIFICATIONS

| | | | |
|---|---|---|---|
| Engine Model | | 4TNV88-XYB | |
| Type | | Vertical, 4-cycle water-cooled diesel engine | |
| No. of cylinders - Bore x Stroke | | 4 - 88 mm (3.46 in) x 90 mm (3.54 in) | |
| Total displacement | | 2.189 liter (134 cu. in) | |
| Compression ratio | | 19.1 | |
| Rated output | | 30.4 kW (41.3 PS) at 2400 rpm | |
| Maximum torque | | 139.3 ~ 147.1 Nm (103 ~ 109 lb. ft.) at 1440 rpm | |
| Low idling | | 1175±25 rpm | |
| High idling | | 2600±25 rpm | |
| Fuel consumption rate | | Less than 242 g / kWh (178 g / PSh) | |
| Allowable tilting angles | | Continuous; 30 for all direction | |
| Rotating direction | | Counterclockwise as seen from flywheel side | |
| Firing order | | 1-3-4-2-1 | |
| Fuel injection timing (b.T.D.C.) | | 15.5±1° | |
| Fuel injection pressure | | 19.6 +1 -0 MPa (2840 +145 -0 psi) | |
| Valve action | | Open | Close |
| | Intake valve | b.T.D.C. 15±5° | a.B.D.C. 45±5° |
| | Exhaust valve | b.T.D.C. 56±5° | a.B.D.C. 18±5° |
| Valve clearance | Intake valve | 0.2 mm (0.008 in) in cold condition | |
| | Exhaust valve | 0.2 mm (0.008 in) in cold condition | |
| Thermostat action | | Start 71° ± 1.5°C (160° ± 3°F) / Full open 85°C (185°F) | |
| Compression pressure | | 3.4 ± 0.1 MPa (500 ± 14 psi) at 250 rpm | |
| Lubrication oil pressure | | 0.44 MPa (64 psi) at 2300 rpm | |
| Dimensions L x W x H | | 684 x 554 x 662 mm (26.9 x 21.8 x 26.1 in) | |
| Dry weight | | 170 kg (375 lb.) | |
| Governor | | Mechanical centrifugal governor (All speed type) | |
| Fuel filtration | | cartridge type paper filter | |
| Lubrication system | | Forced lubrication with trochoid pump | |
| Cooling system | | Liquid cooling / Radiator | |
| Starter capacity | | 12 V x 2.3kW | |
| Generator capacity | | 12 V x 55 A | |
| Starting aid | | Air heater (12 V - 400 W) | |
| Cooling water capacity: Max / Engine | | 6.0 / 2.7 liter (1.59 / 0.71 gal) | |
| Engine oil volume: Max / Effective | | 7.4 / 4.0 liter (1.96 / 1.06 gal) | |



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# 23.2 ELECTRICAL EQUIPMENT AND HARNESS

## 23.2.1 ELECTRICAL EQUIPMENT LIST

**NOTE:** *Refer to fold out schematics.*

| Group | Code | Name | Part No. |
|---|---|---|---|
| Diode | D-1 | DIODE | YN02D01001P1 |
| | D-2 | DIODE | |
| | D-3 | DIODE | |
| | D-4 | DIODE | |
| | D-12 | DIODE | |
| | D-13 | DIODE | |
| | D-14 | DIODE | |
| Electrical Fittings | E-1 | FUSE BOX | PW73E00001F1 |
| | E-2 | GENERATOR (ALTERNATOR) | E/G accessory (119626–77210) |
| | E-3 | HORN | PY53S00002P1 |
| | E-4 | FUSIBLE LINK | PH73S00001P1 |
| | E-6 | GAUGE CLUSTER | PH59S00005F1 |
| | E-8 | AIR HEATER | E/G accessory (129100–77501) |
| | E-10 | RADIO (OPT) | Cab accessory (PY54S00001P1) |
| | E-12 | HEATER (OPT) | PM21M00005F1 |
| | E-13 | BATTERY | YJ72S00001P1 |
| | E-14 | SEQUENCE BOX | PA24S00002P3 |
| | E-15 | FUSE BOX FOR COOLER (OPT) | PH73E00004F1 |
| | E-20 | TRAVEL ALARM | PW53S00002F1 |
| | E-26 | HOUR METER | YT58S00006P1 |
| Light | L-1 | ROOM LAMP | PM80S00006P1 |
| | L-2 | BOOM WORKING LIGHT | PM80S00007F1 |
| | L-5 | CANOPY WORKING LIGHT | PW80S00003F1 |
| Motor | M-1 | STARTER MOTOR | E/G accessory (129136-77011) |
| | M-2 | WIPER MOTOR (CAB) | Cab accessory (PM76S00001F1) |
| | M-3 | WASHER MOTOR (CAB) | Cab accessory (PE54C00002S002) |
| | M-4 | DECELERATION MOTOR | PH20S00008F1 |
| Relay | R-1 | BATTERY RELAY | PH24S00001P1 |
| | R-2 | SAFETY RELAY | PX24S00001P1 |
| | R-3 | DECELERATION RELAY | PA24E01001P1 |
| | R-6 | TIMER UNIT | PH25S00002P1 |
| | R-7 | E/G STOP RELAY | PH24S00001P1 |
| | R-8 | CHARGE INDICATOR RELAY | PA24E01001P1 |
| | R-9 | CAB / CANOPY WORKING LIGHT RELAY | |
| | R-14 | SLEW / SWING SELECT RELAY | |
| | R-22 | SW. SELECT RELAY | |
| | R-23 | SLEW / SWING PRESERVATION RELAY | |
| | R-24 | NIBBLER OPEN RELAY | |
| | R-25 | NIBBLER CLOSE RELAY | |
| Sensor | SE-1 | FUEL SENSOR | PX52S00006F1 |
| | SE-2 | ENGINE THERMO SENSOR | PA24S00003P1 |

**NOTE:** *The part number may be changed because of modification, use them only for reference.*
**NOTE:** *NA: North America, AUST: Australia.*

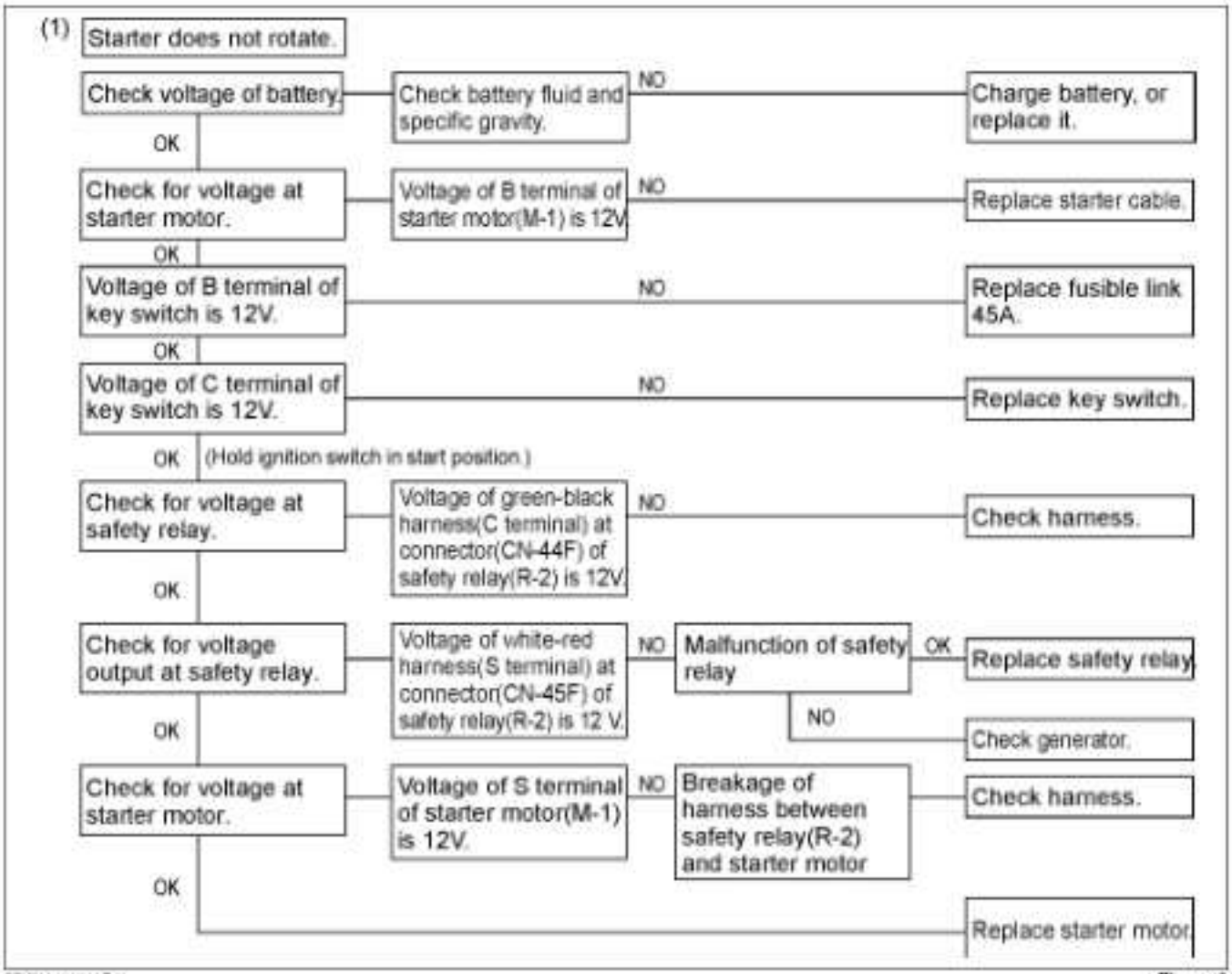


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# 43.2 TROUBLESHOOTING

## 43.2.1 GENERAL

### 43.2.1.1 ENGINE DOES NOT START.



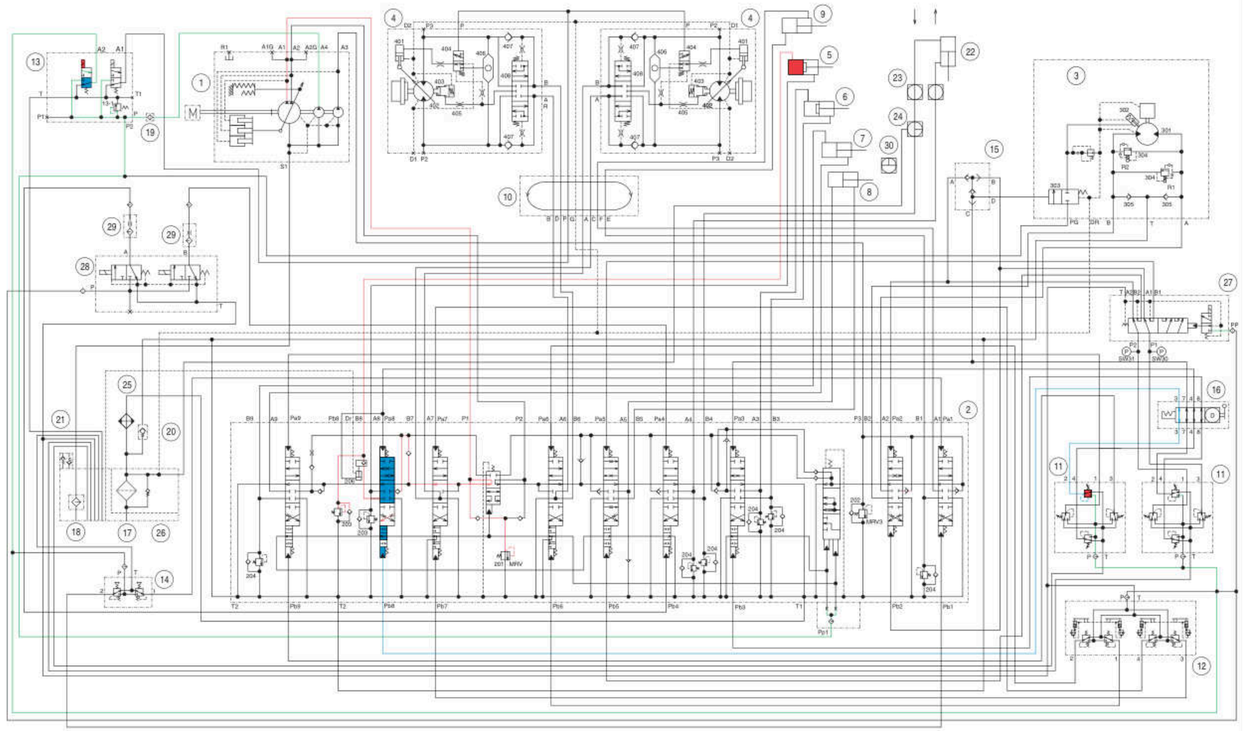

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Figure 2

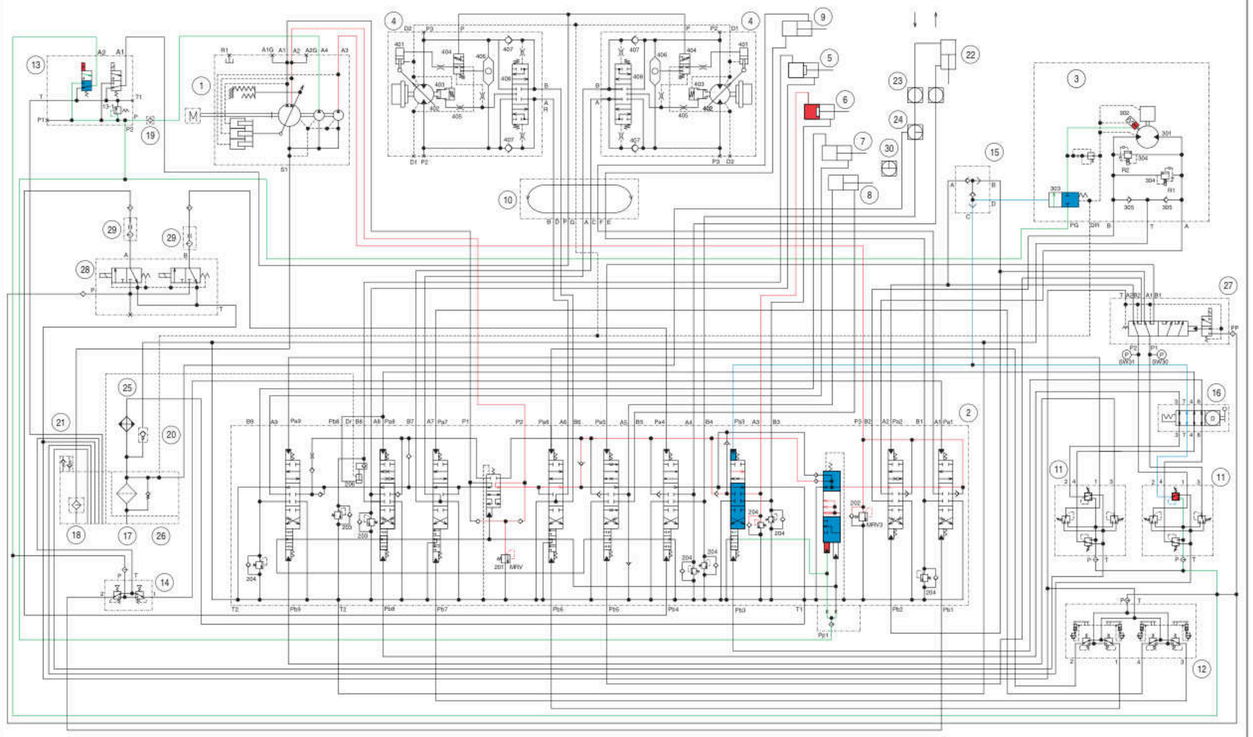


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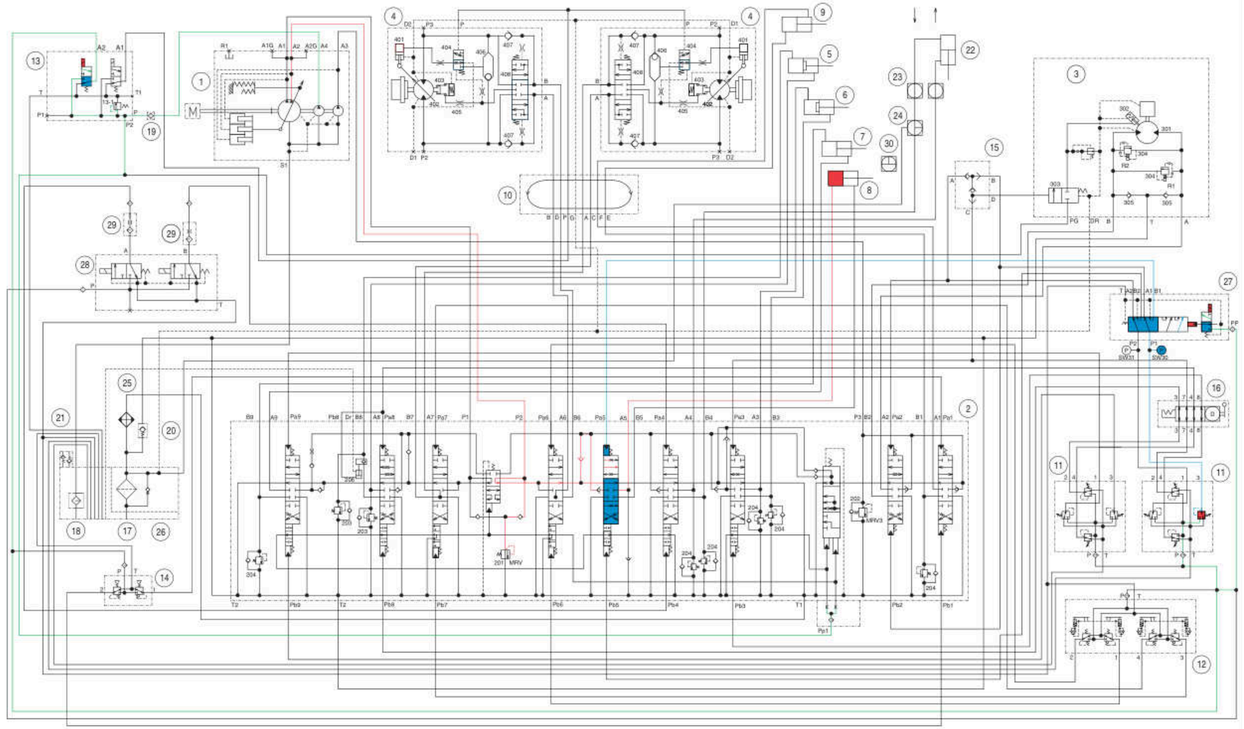
BOOM CIRCUIT - BOOM-UP OPERATION



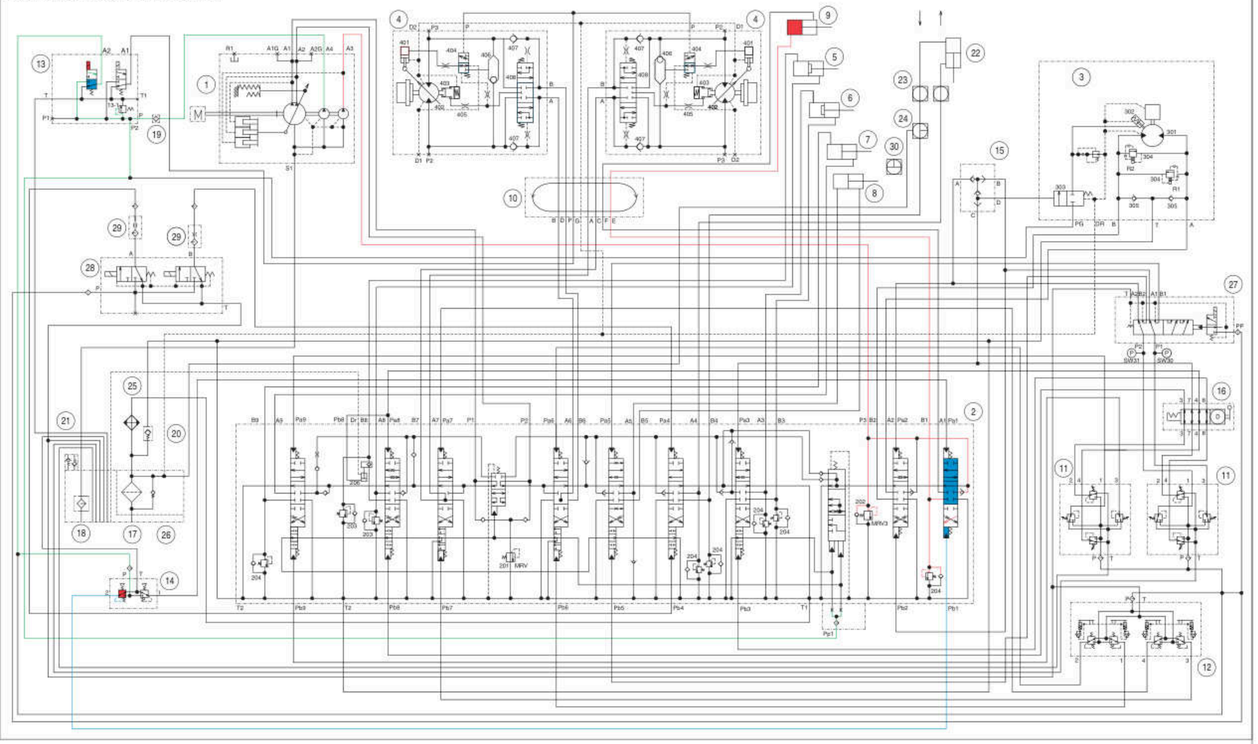
ARM CIRCUIT - ARM-IN OPERATION



SWING CIRCUIT - BOOM SWING-LEFT OPERATION



DOZER CIRCUIT - DOZER-DOWN OPERATION



COMPONENT IDENTIFICATION

1. PUMP ASSEMBLY
2. CONTROL VALVE
3. SLEWING MOTOR
4. TRAVEL MOTOR
5. BOOM CYLINDER / CANOPY CAB
6. ARM CYLINDER
7. BUCKET CYLINDER
8. SWING CYLINDER
9. DOZER CYLINDER
10. SWIVEL JOINT
11. PILOT VALVE (ATT)
12. PILOT VALVE (TRAVEL)
13. SOLENOID VALVE
14. PILOT VALVE (DOZER)
15. SHUTTLE VALVE
16. MULTI CONTROL VALVE
17. RETURN FILTER (ELEMENT)
18. SUCTION STRAINER
19. INLINE FILTER
20. CHECK VALVE
21. HYDRAULIC RESERVOIR VENT
22. NIBBLER CYLINDER
23. STOP VALVE
24. SELECTOR VALVE
25. OIL COOLER
26. HYDRAULIC OIL TANK
27. SOLENOID VALVE
28. SOLENOID VALVE
29. ORIFICE

NOTES

1. 201 (MAIN RELIEF VALVE P1,P2) 23.0 MPa (3340 psi)
2. 202 (MAIN RELIEF VALVE P3) 23.0 MPa (3340 psi)
3. 203 (OVERLOAD RELIEF VALVE) 27.5 MPa (4000 psi)
4. 204 (OVERLOAD RELIEF VALVE) 25.5 MPa (3700 psi)
5. 304 (SLEW RELIEF VALVE) 21.0 MPa (3050 psi)
6. 13-1 (PILOT RELIEF VALVE) 3.5MPa (508 psi)

HYDRAULIC SYMBOLS

PRESSURE
PILOT MAIN PRESSURE
PILOT SEC PRESSURE
CASE DRAIN
COMPONENT
54 COMPONENT NUMBER
SHOWS CIRCUIT CROSSING NOT CONNECTED
SHOWS CIRCUIT CONNECTED
CHECK VALVE
RESTRICTOR
FILTER OR SCREEN
OIL COOLER

# HYDRAULIC SCHEMATIC
# E50 HYDRAULIC EXCAVATORS

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