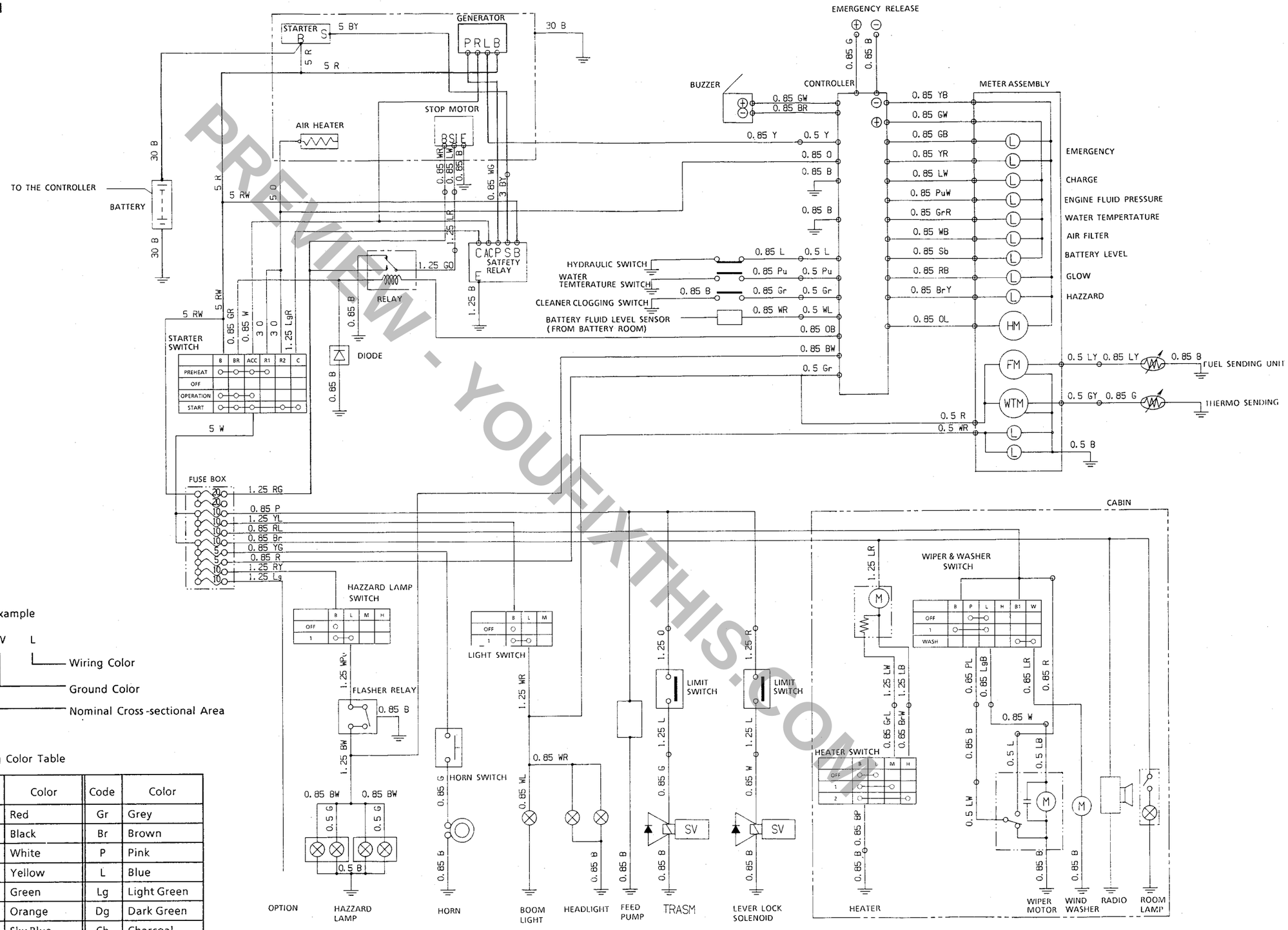
ELECTRICAL SYSTEM

ELECTRICAL WIRING DIAGRAM
Serial No.
TB025 : 1253001~1256368
TB030 : 1303001~1305192
TB035 : 1353001~1356111



Wiring Example

0.85 W L
- L — Wiring Color
- W — Ground Color
- 0.85 — Nominal Cross-sectional Area

Wiring Color Table

Code	Color	Code	Color
R	Red	Gr	Grey
B	Black	Br	Brown
W	White	P	Pink
Y	Yellow	L	Blue
G	Green	Lg	Light Green
O	Orange	Dg	Dark Green
Sb	Sky Blue	Ch	Charcoal
Pu	Purple		

K2-8003A

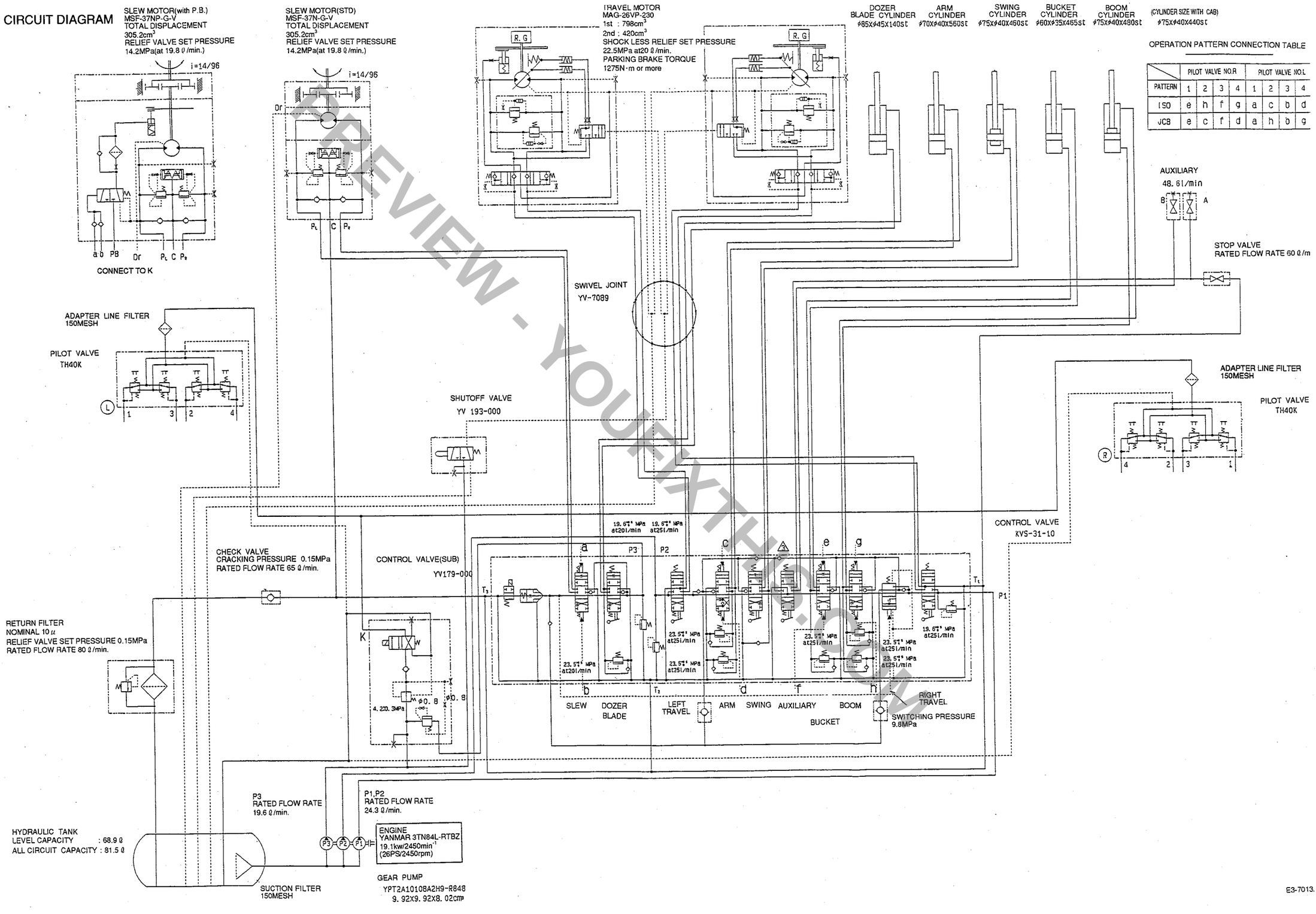
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HYDRAULIC SYSTEM

HYDRAULIC CIRCUIT DIAGRAM

■ TB025



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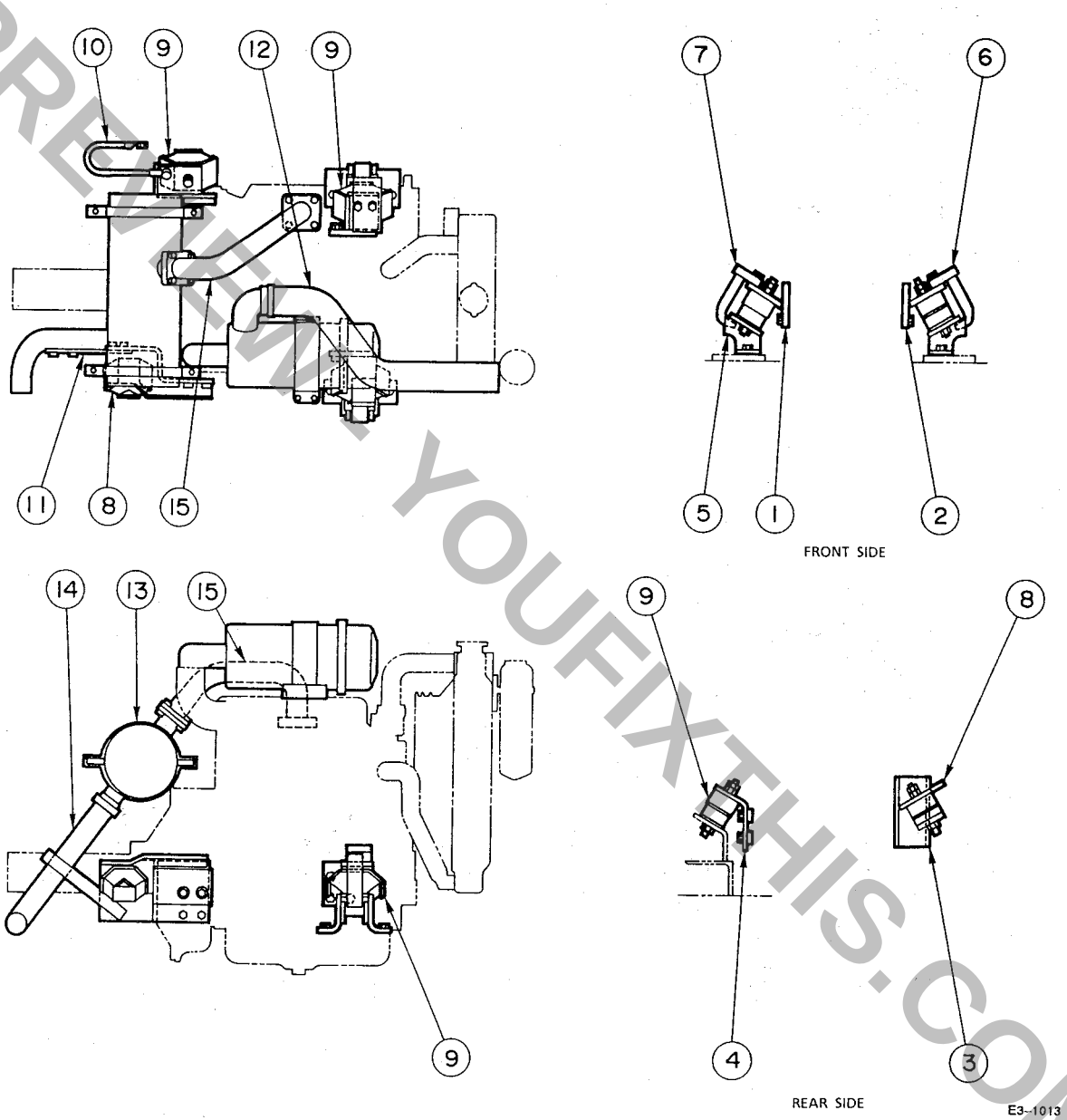
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DRIVE SYSTEM

STRUCTURE

Engine Mount

■ TB025



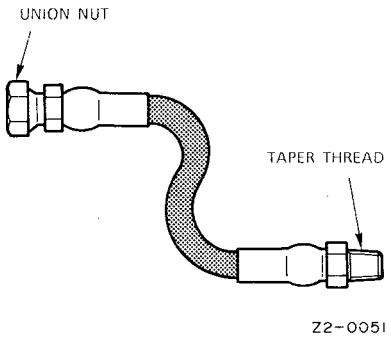
1. Engine Foot (FR)
2. Engine Foot (FL)
3. Engine Foot (RR)
4. Engine Foot (RL)
5. Bracket
6. Stopper
7. Stopper
8. Cushion Rubber
9. Cushion Rubber
10. Ground Cable
11. Bracket
12. Air Cleaner Hose
13. Silencer
14. Exhaust Pipe
15. Muffler Pipe

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TIGHTENING TORQUES

Hydraulic Hoses

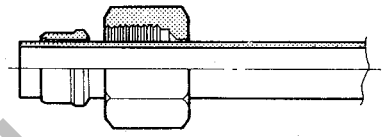
Hose Fitting Size	Torque			
	Union Nut (PF)		Taper Threads (PT)	
	kgf·m	ft-lb	kgf·m	ft-lb
1/8	$1.0^{+0.5}_{0}$	$7.3^{+3.5}_{0}$	$1.2^{\pm 0.12}$	$8.7^{\pm 0.8}$
1/4	$2.5^{+0.5}_{0}$	$18.1^{+3.5}_{0}$	$3.0^{\pm 0.30}$	$21.7^{\pm 2.1}$
3/8	$5.0^{+0.5}_{0}$	$36.2^{+3.5}_{0}$	$5.5^{\pm 0.55}$	$39.8^{\pm 3.9}$
1/2	$6.0^{+0.5}_{0}$	$43.4^{+3.5}_{0}$	$9.0^{\pm 0.90}$	$65.1^{\pm 6.4}$
3/4	$12.0^{+0.5}_{0}$	$86.8^{+3.5}_{0}$	$15.0^{\pm 1.50}$	$108.5^{\pm 10.7}$
1	$14.0^{+0.5}_{0}$	$101.3^{+3.5}_{0}$	$20.0^{\pm 2.00}$	$144.7^{\pm 14.3}$



Z2-0051

Bite Type Pipe Fitting For Steel Pipe

Pipe Outer Diameter (mm)	Torque	
	kgf·m	ft-lb
8	$3.5^{\pm 0.5}$	$25.3^{\pm 3.5}$
10	$4.25^{\pm 0.25}$	$30.7^{\pm 1.7}$
12	$6.0^{\pm 0.5}$	$43.4^{\pm 3.5}$
15	$9.0^{\pm 0.5}$	$65.1^{\pm 3.5}$
16	$9.5^{\pm 0.5}$	$68.7^{\pm 3.5}$
18	$13.5^{\pm 0.5}$	$97.6^{\pm 3.5}$
22	$21.0^{\pm 1.0}$	$151.8^{\pm 7.2}$
27.2	$25.0^{\pm 1.0}$	$181.0^{\pm 7.2}$
28	$32.0^{\pm 2.0}$	$231.4^{\pm 14.3}$
32	$32.0^{\pm 2.0}$	$231.4^{\pm 14.3}$
35	$42.0^{\pm 2.0}$	$303.7^{\pm 14.3}$


Z2-0061

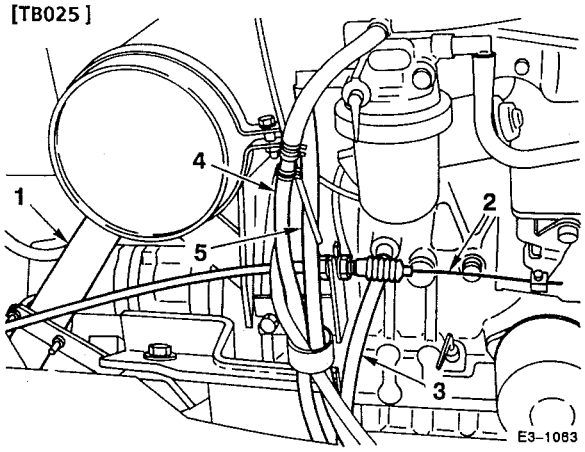
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DISASSEMBLY AND ASSEMBLY

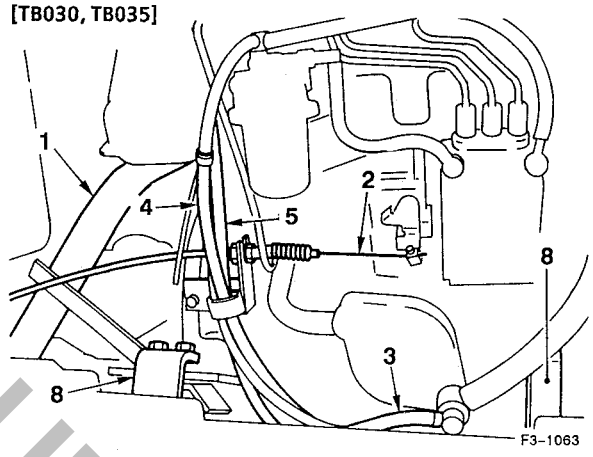
Removing the Engine

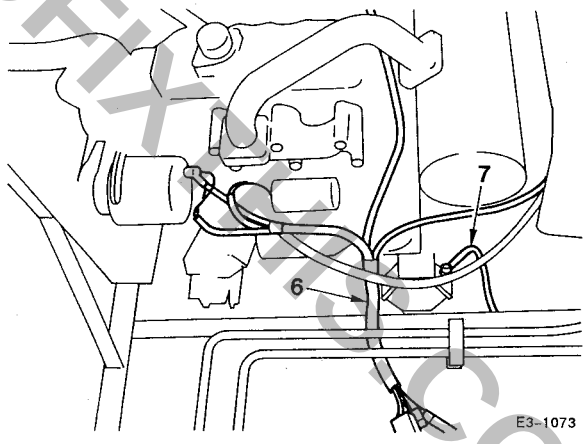
1. Remove the bonnet and the side covers (R), (L).
   • Refer to the item "Removing the Covers".
2. Remove the radiator and oil cooler.
   • Refer to the item "Radiator and Oil Cooler".
3. Remove the battery and hydraulic pump.
   • Refer to the item "Removing the Hydraulic Pump"
4. Remove the exhaust pipe (1)
5. Disconnect the accelerator wire (2) from the engine.
6. Disconnect the coolant drain hose (3).
7. Disconnect the fuel pipes (4), (5) from the engine.
8. Disconnect the electrical wiring (6) from the engine.
   • Attach labels to each wire to identify them.
9. Disconnect the engine ground cable (7).
10. Remove the stoppers (8).
11. Remove the cushion rubber installation nuts (9), then remove the engine assembly.
    • Engine Unit Weight : Approx. 160 kg (TB025)
      Approx. 165kg (TB030, TB035)

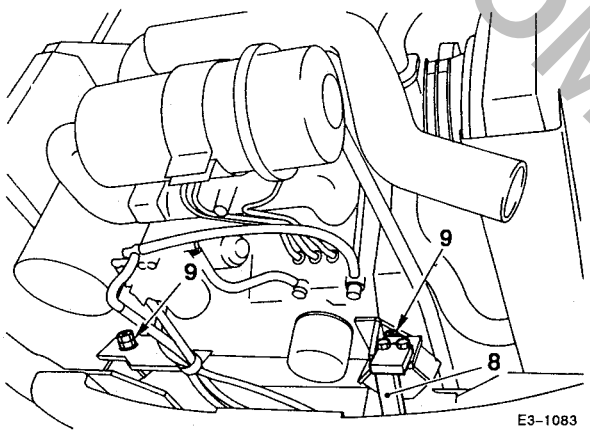
[TB025]



[TB030, TB035]







Installing the Engine

Follow the procedure used for removal in reverse order.

• Cushion Rubber Installation Nut Tightening Torque :
9.9 kgfm

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PREFACE

This section, "Troubleshooting", explains troubleshooting in cases where trouble occurs mainly in the hydraulic system together with countermeasures. The troubleshooting sequence is indicated in a diagram at the beginning of each item, so the cause can be investigated by following the arrows in the diagram. In addition, items in the diagrams are numbered, and the items are explained in the order in which they are thus numbered.
We want, through future revisions of this manual, etc., to improve it and make it as complete as we possibly can. We welcome any opinions or suggestions, etc. which you may have that would help us. Please address all comments to the person in charge.

Cautions concerning Troubleshooting and Repairs

(1) Do not begin disassembling the machine immediately just because someone says that trouble has occurred. Before disassembly, a thorough preliminary investigation should be conducted.

a. Ask the user the following questions.
- Under what conditions did the trouble occur?
- Was there anything unusual that happened before the trouble occurred?
- Are there any places which are not operating properly besides the part that is causing trouble?
- What was repaired before the trouble occurred and when?
- Has the same trouble occurred before?

b. Operate the machine yourself and try to confirm the trouble conditions.
- Judge if there really is something wrong with the machine according to "Standards for Judging Performance". There is danger that different people could end up judging differently if there really is trouble or not.

Caution
Before moving the machine, it is best to ask the user if it is alright to move the machine, since moving it could make the trouble worse or could be dangerous.

c. Judge the causes of the trouble based on the information provided by the user and what was learned from operating the machine. Also, once the machine has been disassembled, it is difficult to reproduce the conditions that existed at the time the trouble occurred, and thus impossible to know that the causes of the trouble are. For this reason, be sure to get a good estimate of the causes of the trouble before disassembling the machine.

(2) When it is thought that there are a number of different causes, begin investigating from the simplest ones.

(3) Think about why the trouble could occur, then make repairs of the root cause of the trouble.

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SPECIFICATIONS

SPECIFICATIONS

SPECIFICATIONS

Model		TB025	
Serial Number		1253001~	
Type		Cabin	
		Steel Crawler	Rubber Crawler
Bucket Capacity (SAE Rated)	$m^3(yd^3)$	0.070 (0.092)	←
Weight in Transport Condition	kg(lb)	2730 (6019)	2650 (5842)
Dimensions	mm(in)		
Overall Length		4405 (173.4)	←
Overall Width		1450 (57.1)	←
Overall Height		2505 (98.6)	2510 (98.8)
Minimum Ground Clearance		310 (12.2)	315 (12.4)
Minimum Height of Upper Machinery		565 (22.2)	570 (22.4)
Overall Width of Upper Machinery		1430 (56.3)	←
Overall Width of Crawler		1450 (57.1)	←
Overall Length of Crawler		1870 (73.6)	1905 (75.0)
Minimum Slew Radius		1895 (74.6)	←
Maximum Height of Hoe at Minimum Slew Radius		3325 (130.9)	3330 (131.1)
Tail Swing Radius		1290 (50.8)	←
Dozer Blade Width		1450 (57.0)	←
Dozer Blade Height		350 (13.8)	←
Working Range	mm(in)		
Maximum Digging Height		4095 (161.2)	4115 (162.0)
Maximum Digging Depth		2600 (102.4)	2580 (101.6)
Vertical Digging Depth		1950 (76.8)	1930 (76.0)
Maximum Digging Reach		4560 (179.5)	←
Maximum Reach at Ground		4435 (174.6)	4440 (174.8)
Maximum Dumping Height		2860 (112.6)	2865 (112.8)
Bucket Offset : Right/Left		560 (22.0)/495 (19.5)	←
Dozer Blade Lift : Above/ Below ground		410 (16.1)/285 (11.2)	←
Performance			
Digging Force : Bucket/Arm	kg(lb)	1800 (3968)/1370 (3020)	←
Slew Speed	rpm(rpm)	10.0 (10.0)	←
Travel Speed	km/h(mph)	Low : 2.2 (1.37)/High : 4.0 (2.49)	Low : 2.3 (1.43)/High :4.3 (2.67)
Traction Force	kg(lb)	2730 (6019)	←
Gradeability	deg	30	←
Ground Pressure (JIS)	$kgf/cm^2(psi)$	0.30 (4.24)	0.28 (4.03)

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FLUID CAPACITIES

Model		TB025	TB030	TB035
Serial Number		1253001~	1303001~	1353001~
Hydraulic Oil : Tank / Total System	ℓ (gal)	69 (18.2)/82 (21.7)	80 (21.1)/98 (25.9)	80 (21.1)/100 (26.4)
Engine Oil : Upper Limit / Lower Limit	ℓ (gal)	4.7 (1.2)/2.9 (0.8)	←	←
Slew Reduction Gear	ℓ (pt)	0.75 (1.59)	←	←
Travel Reduction Gear	ℓ (pt)	0.5 (1.06)	←	←
Carrier Roller	cc (gill)	45 (0.38)	←	←
Track Roller	cc (gill)	70 (0.59)	←	←
Idler	cc (gill)	50 (0.42)	←	←
Slew Grease Bath	cc (pt)	2800 (5.92)	←	←
Pump Spline	cc (gill)	15 (0.13)	←	←
Fuel Tank	ℓ (gal)	29 (7.7)	34 (9.0)	←
Engine Cooling System	ℓ (gal)	5 (1.3)	←	←

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RECOMMENDED LUBRICANTS

Item	Hydraulic Oil	Pump Spline	Reduction Gears	Grease Bath Grease Fittings
Interval	Every 1,000 hrs.		(First 500 hrs.) Every 1,000 hrs.	Every 10 hrs. Every 50 hrs.
	Antiwear hydraulic oil	Molybdenum disulfide annexed grease	API GL-4 or GL-5 SAE 90	EP-2 Lithium-base grease
ESSO	Nuto H46		Gear oil GP 90	Beacon EP 2
MOBIL	DTE 25		Mobilube GX 90	Mobiiluxe EP 2
GULF	Harmony 46 AW			Gulfcrown No. 2 EP
TEXACO	Regal R&O 46		Thuban Universal 90	Multifak EP 2
SHELL	Tellus oil 46	Retinax AM	Spirax EP 90	Alvania EP 2

1. When the oil is dirty or has deteriorated, replace it at shorter intervals than called for above.
2. When supplying oil and grease, use the same brand of lubricant. When replacing hydraulic oil, be sure to replace it all at once. Do not mix different brands of hydraulic oil.

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COMPACT EXCAVATOR

TB025
TB030
TB035

WORKSHOP MANUAL

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SERIAL NUMBER
TB025 : 1253001～
TB030 : 1303001～
TB035 : 1353001～

TAKEUCHI
TAKEUCHI MFG.CO.,LTD.

07. 98

9609



Ⅰ. GENERAL



Ⅱ. SPECIFICATIONS



Ⅲ. MACHINE CONFIGURATION



Ⅳ. HYDRAULIC UNITS



Ⅴ. TROUBLESHOOTING

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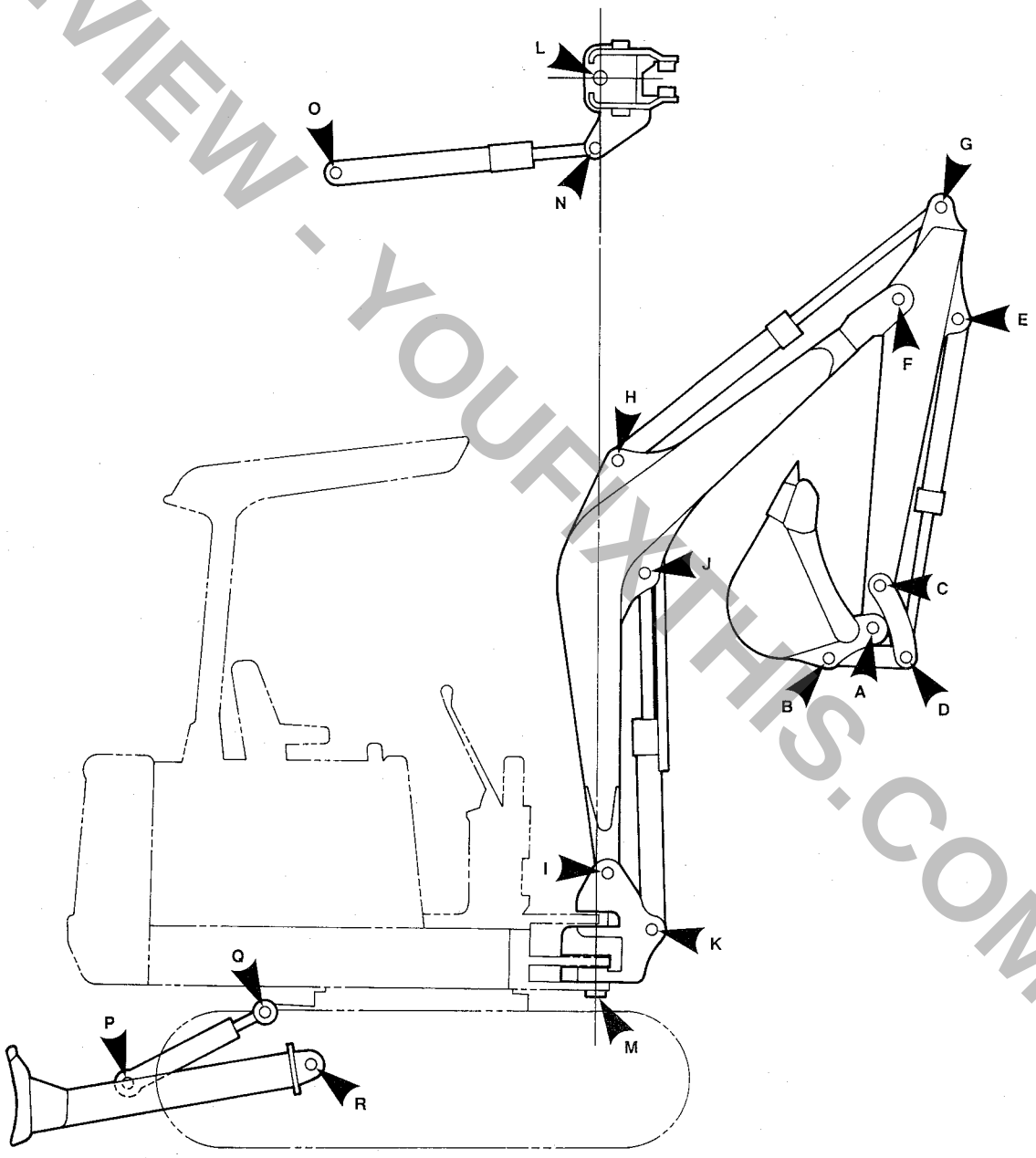
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ATTACHMENTS

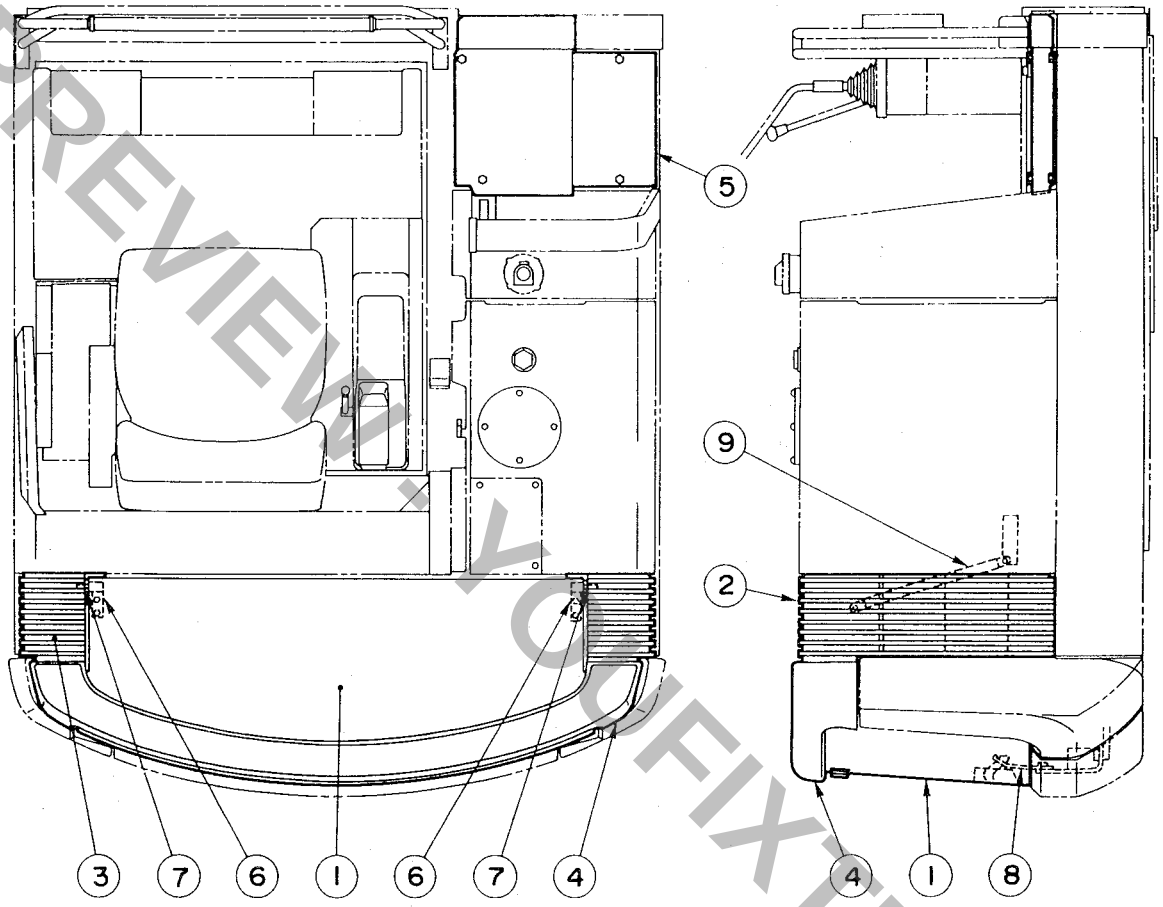
Pin and Bushing Clearances



K2-0032

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Cover

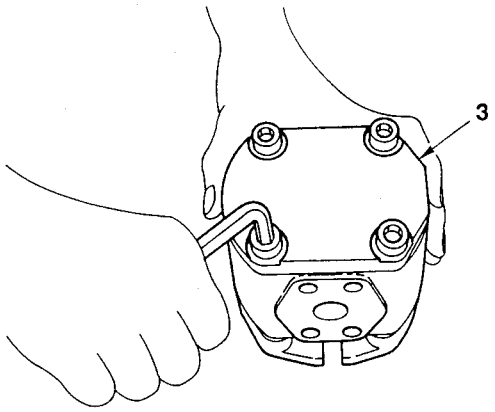


F3-4023

1. Bonnet
2. Side Cover (R)
3. Side Cover (L)
4. Protector
5. Floor Plate
6. Hinge Pin
7. Collar
8. Bracket
9. Stay Damper

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4. Take out the socket bolts and remove the cover (3).

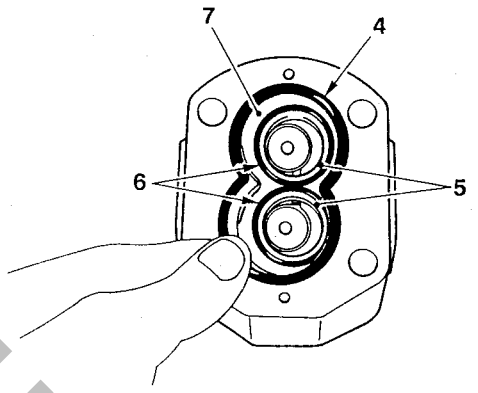


G3-2144

5. Remove the seal ring (4).

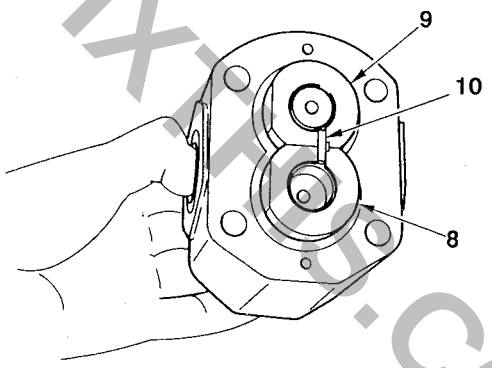
6. Remove the guides (5) and O-rings (6).

7. Remove the plate (7).



G3-2154

8. Press on the drive gear and remove the bushings (8), (9) and square ring (10).

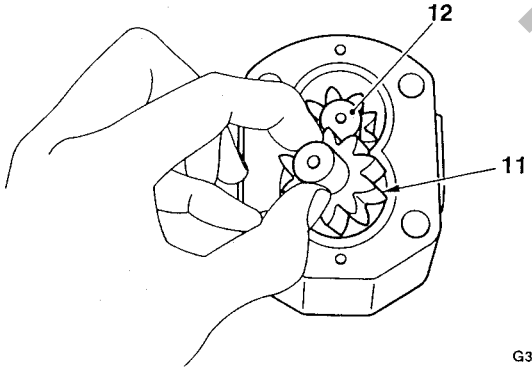


G3-2164

9. Remove the driven gear (11) and drive gear (12).

10. Remove the remaining bushings (1 pair) and square ring.

11. In the same way, take out the plates (2 plates), separate the flange and housing and remove the seal ring.

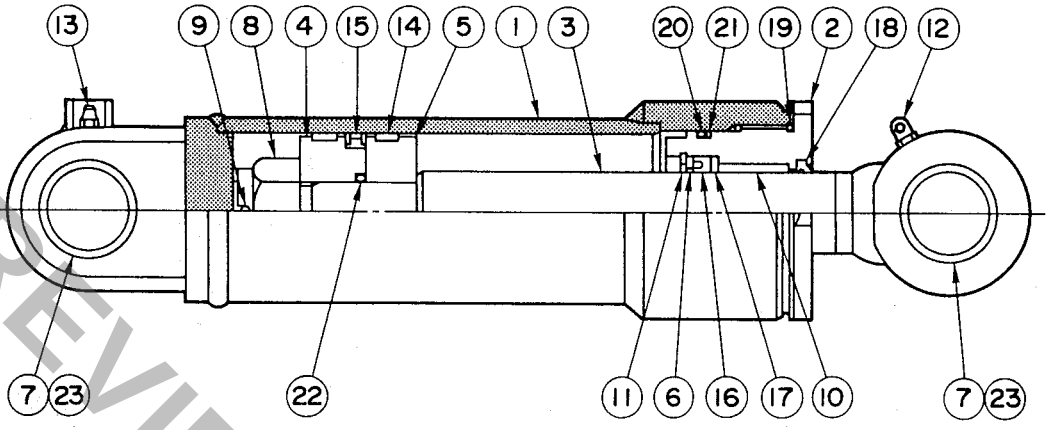


G3-2174

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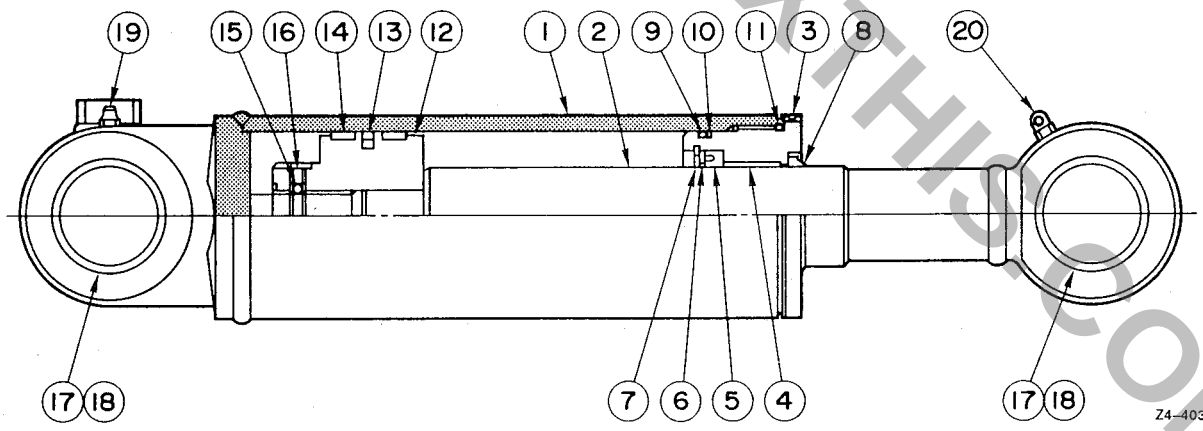
Dozer Blade Cylinder

■ TB025



1. Tube
2. Rod Cover
3. Piston Rod
4. Piston
5. Packing Holder
6. Packing Holder
7. Bushing
8. Nut
9. Split Pin
10. Bushing
11. Snap Ring
12. Grease Nipple
13. Grease Nipple
14. Wear Ring
15. Piston Packing
16. Rod Packing
17. Backup Ring
18. Dust Seal
19. O-ring
20. O-ring
21. Backup Ring
22. O-ring
23. Dust Seal

■ TB030, TB035



1. Tube
2. Piston Rod
3. Rod Cover
4. Bushing
5. Rod Packing
6. Packing Holder
7. Snap Ring
8. Dust Seal
9. O-ring
10. Backup Ring
11. O-ring
12. Piston
13. Piston Packing
14. Wear Ring
15. Steel Ball
16. Set Screw
17. Bushing
18. Dust Seal
19. Grease Nipple
20. Grease Nipple

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Relief Valve

Symptom	Main Causes	Remedy
Does not move, or turning is slow.	Relief valve seat is faulty. • Foreign matter gets caught. • A spring is damaged.	• Remove the foreign matter and repair or replace the damaged parts. • Replace the spring.
	The relief valve cracking pressure has dropped. • The spring is permanently deformed. • The poppet orifice is clogged up.	• Replace the relief valve assembly. • Clean it.
Valve doesn't stop, or stopping is slow.	The relief valve seat is faulty. • Foreign matter gets caught. • A spring is damaged.	• Remove the foreign matter and repair or replace the damaged parts. • Replace the spring.
	The relief valve cracking pressure has dropped. • Foreign matter gets caught. • A spring is damaged.	• Remove the foreign matter and repair or replace the damaged parts. • Replace the spring.
	The relief valve cracking pressure has dropped. • The spring is permanently deformed. • The poppet orifice is clogged up.	• Replace the relief valve assembly. • Clean it.
The shock is great when stopping travel.	The shockless function is not operating. • Foreign matter is caught in the shockless piston. • A spring is damaged. • The relief set pressure rises.	• Remove the foreign matter and repair or replace the damaged parts. • Replace the spring. • Readjust the relief valve set pressure.

2-speed Control Function

Symptom	Main Causes	Remedy
Machine veers during travel.	Plunger doesn't switch over. • Foreign matter is caught. • A spring is missing. • A spring is damaged.	• Remove the foreign matter and repair or replace the damaged parts. • Install the spring. • Replace the spring.
	• Oil leaks due to abnormal wear of the 2-speed control piston.	• Replace the 2-speed control piston.
	• The 2-speed control piston is missing.	• Install the 2-speed control piston.
	• The steel balls are abnormally worn.	• Replace the steel balls.

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CONTENTS

OVERALL MACHINE
No operations can be done. 03
All operations can be done, but there is no power. 06
The boom, bucket, slew and arm do not move at all, or the speed is low. 09

MACHINE TRAVEL
Right or left travel is impossible. 12
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Machine won't accelerate during travel. 18
During travel, the boom and bucket,
or the arm and boom swing, cannot be operated. 20

SLEWING
No slewing can be done. 23
Right or left slewing cannot be done. 26
Slewing speed is low, or there is no power. 28
The machine slews,
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When stopped on a slope,
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BOOM
The boom cylinder doesn't move. 35
Boom cylinder operation is slow, or there is no power. 38
If the boom operation lever is pulled gently, the boom drops temporarily. 41
The amount of boom natural fall is great. 42

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The arm cylinder doesn't move. 43
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The amount of arm natural fall is great. 47

BUCKET
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The amount of bucket natural fall is great. 50

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The swing cylinder doesn't move. 51

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The amount of dozer blade natural fall is great
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