FOREWORD

This manual is intended for persons who engage in maintenance operations, and explains procedures for disassembly and reassembly of the machine, check and maintenance procedures, maintenance reference values, troubleshooting and outline specifications, etc. Please use this manual as a reference in service activities to improve maintenance techniques.
Further, please be advised that items contained in this manual are subject to change without notice due to design modifications, etc.

MACHINE FRONT AND REAR, LEFT AND RIGHT

The end where the dozer blade is mounted is the front and the end with the travel motors is the rear. Also the right and left sides of the operator when he is seated in the driver's seat are the right and left sides of the machine.

MACHINE SERIAL NUMBER

The machine serial number is stamped on the identification plate. When sending reports and inquiries, and when ordering parts, etc., be sure to include this number.

MANUAL CONTROL

Information on those to whom this manual is distributed is recorded in the ledger in the section in charge at this company, so please decide on a person to be in charge of it and control it. When there are updates or additions, etc., we will notify the person in charge.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Machine Model		TB125		TB135	TB145	
Serial Number		12510003~		13510004~	14510004~ 14513260	14513261~
Slew Motor						
Model		MSG-27P-10E		MSG-27P-16E	MSG-33P-19	MSG-27P-23E
Type		Piston Motor		←	←	←
Total Displacement	cm^3/rev	238		321	559	570
Motor Displacement	cm^3/rev	24.0		20.7	29.4	25.1
Redution Gear Ratio		1/9.9		1/15.5	1/18.9	1/22.7
Relief Valve Pressure Setting	MPa	15.7		18.1	18.6	←
Parking Brake Torque	N·m	775		1230	1863	←
Parking Brake Release Pressure	MPa	2.0		←	←	←
Serial Number		12510003~ 12514525	12514526~	13510004~	14510004~	
Swivel Joint						
Model		YV-7104	YV-7225	YV-7090A	YV-7095	

PREVIEW - YOUFIXTHIS.COM

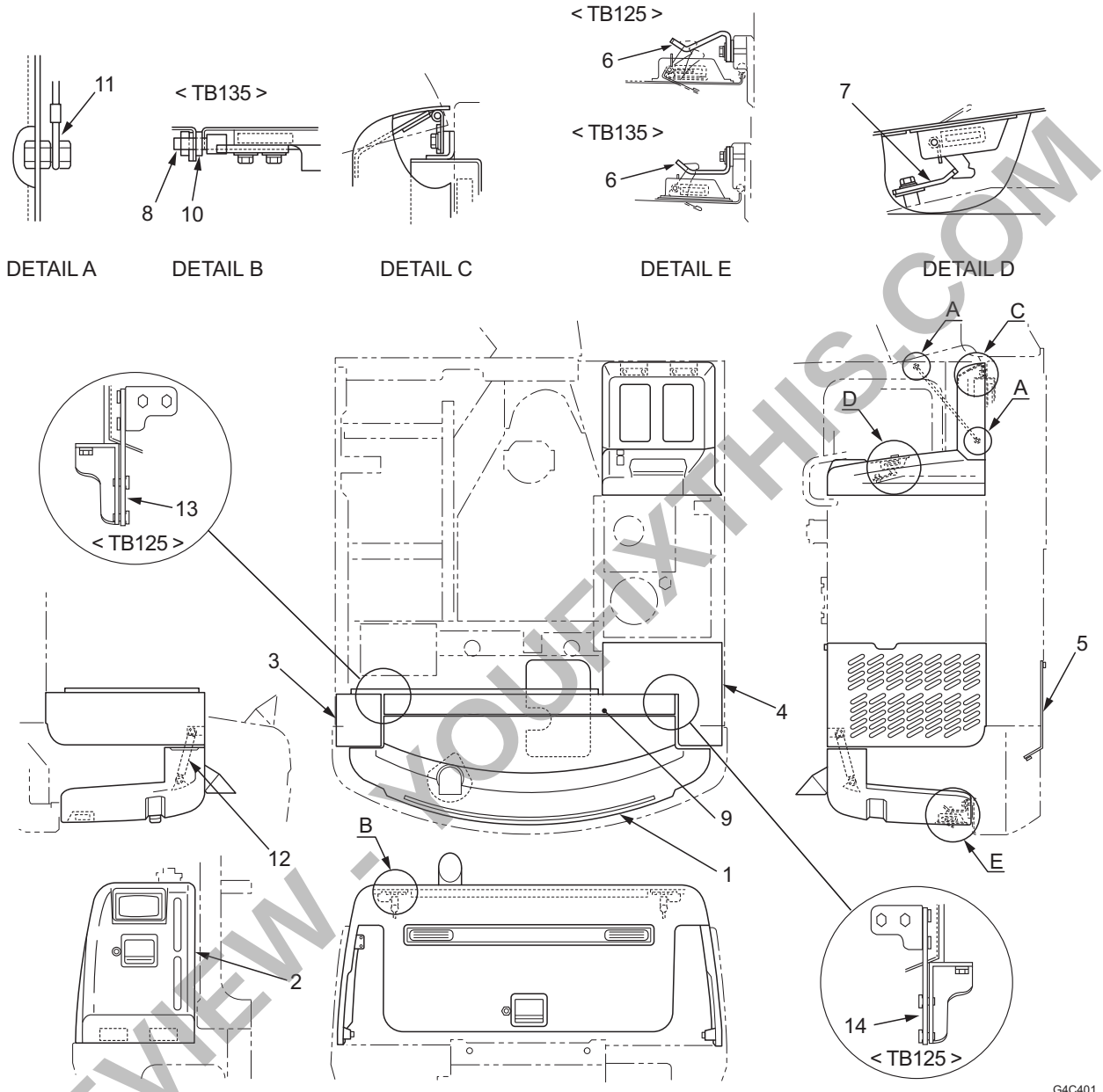
Download full manual at youfixthis.com

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Covers

■ TB125, TB135

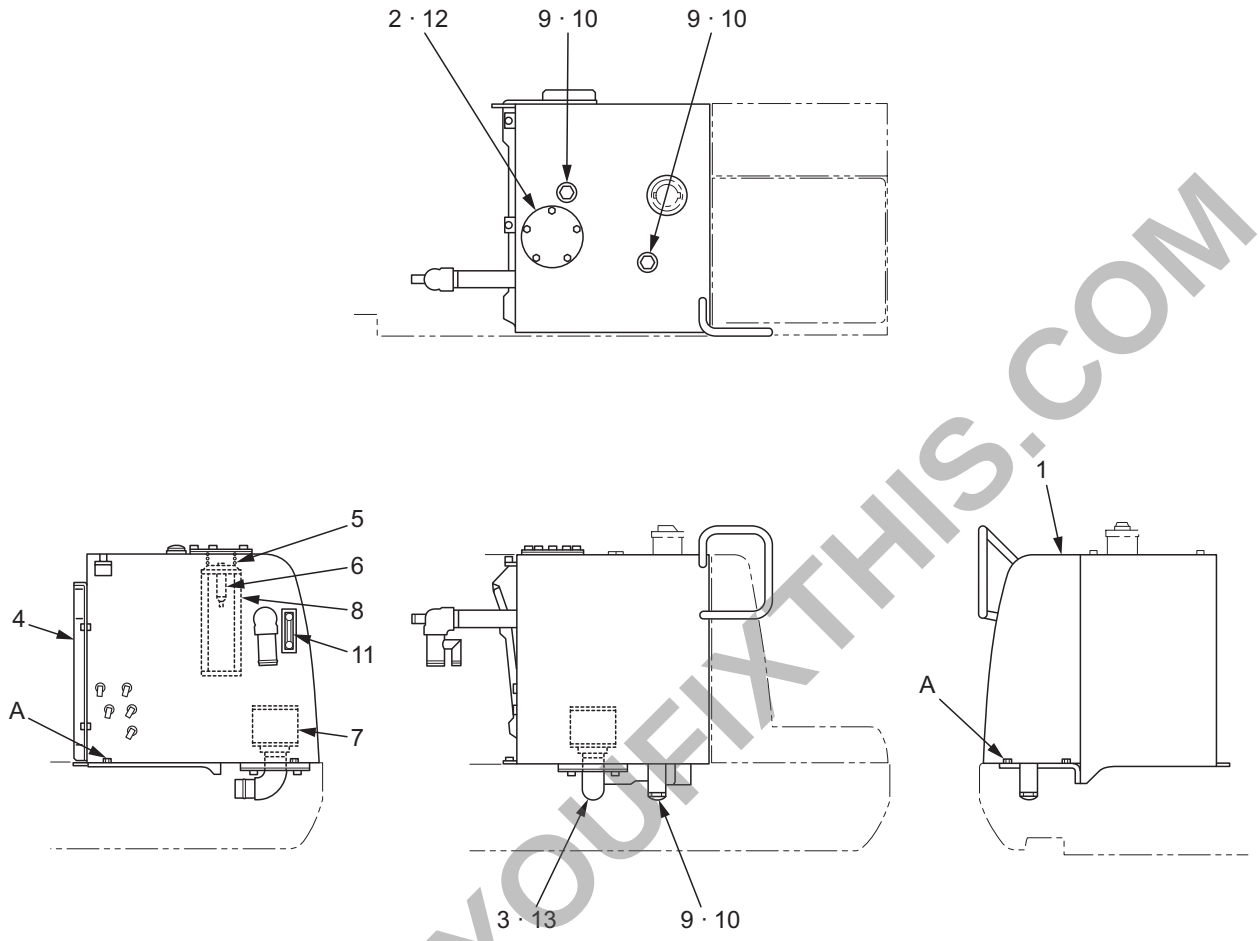


1. Engine Hood
2. Front Cover
3. Side Cover L
4. Side Cover R
5. Under Cover
6. Bracket
7. Bracket
8. Hinge Pin (TB135 only)
9. Center Cover (TB135 only)
10. Collar
11. Wire
12. Stay Damper
13. Link (TB125 only)
14. Link (TB125 only)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

■ TB145



K3C701

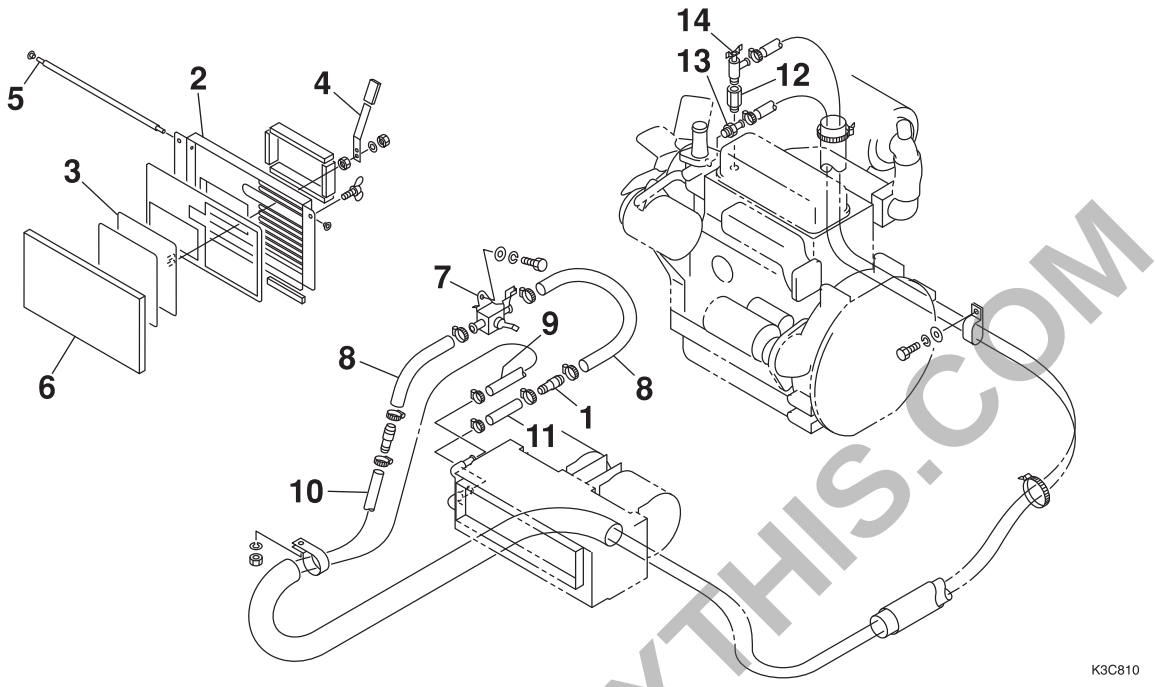
A: Tightening Torque: 47 N·m (4.8 kgf·m) [Apply thread lock]

1. Tank
2. Cover
3. Suction Pipe
4. Plate
5. Spring
6. Check Valve
7. Suction Filter
8. Return Filter
9. Plug
10. O-ring
11. Sight Gauge
12. O-ring
13. O-ring

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Air Conditioner Unit (4/4)



1. Joint	6. Filter	11. Hose
2. Cover	7. Valve	12. Bushing
3. Plate	8. Hose	13. Nipple
4. Lever	9. Hose	14. Valve
5. Boss	10. Hose	

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

3. Add refrigerant until the gauges read in the normal range and the sight glass appears clear. The sight glass may not be clear for a moment just before or after the clutch cycles on and off but should generally be clear. Gauge readings will fluctuate as the compressor cycles on and off.

Note: Pressures within the air conditioning system vary with ambient temperature. A normal pressure range is defined as follows:

Low side 15–30 PSIG
High side 150–280 PSIG

If R-134a is used in place of R-12 the high side readings will be about 20 PSI higher. For this reason many OEMs are recommending an increase in condenser capacity when retrofitting to the new refrigerant, R-134a.

CAUTION If the gauges show any abnormally high or low pressures as you are adding refrigerant, stop and investigate for probable cause. Never add more than one pound of refrigerant. If the system is low enough on refrigerant to require more than that amount you should stop and check again for leaks. Then recover all of the refrigerant, repair, evacuate and recharge the air conditioner. (See *Chapter 9*). You may want to add dry nitrogen gas to the AC system instead of R-12 if pressures are below normal and a leak is suspected. Nitrogen gas is sold in cylinders under high pressure, 1800 to 2000 PSI. Be sure the cylinder has a pressure regulating valve to control the pressure when dispensing nitrogen gas. Dispose the gas at no more than 200-250 psi, as this is sufficient pressure to cause or indicate a leak point. See note under *Troubleshooting by Manifold Gauge Set Readings* in this chapter.

4. When the gauges show normal, close the hand valve on the manifold, the hose end shutoff valve, and the valve on the refrigerant container. You can now proceed with the performance inspection.

3. Stabilizing The AC System

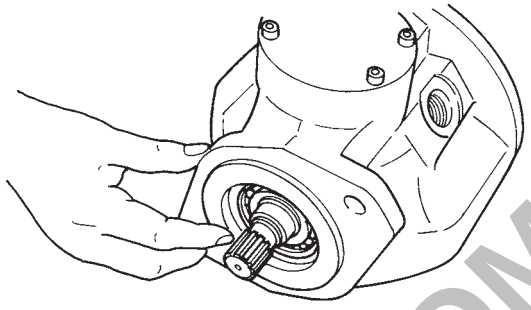
For reliable gauge readings as an aid in troubleshooting, the AC system must be stabilized.

CAUTION Be sure your tools and test equipment are clear of all moving parts of the engine and air conditioner.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

4. Install the shaft in the housing.
   - Tap the spline end with a plastic hammer to positively install the outer race of the bearing in the housing hole.

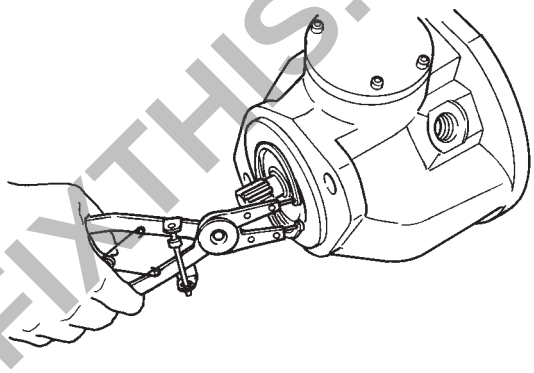
5. Install the O-ring.



Y4–D132

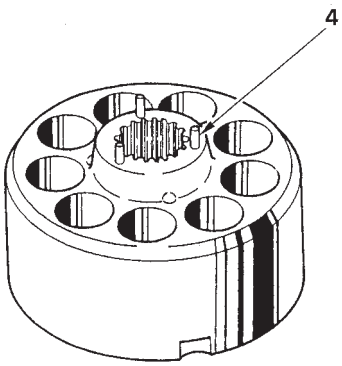
6. Install the oil seal case with installed oil seal.
   - Install the oil seal case so that it is straight.

7. Install the snap ring.



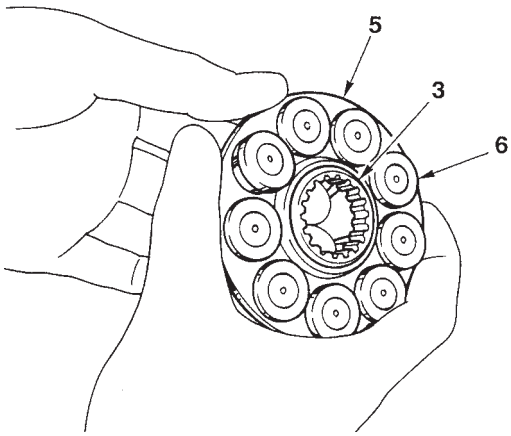
Y4–D133

8. Assemble the cylinder block.
   a. Install the pin (4) in the cylinder block.
      - Apply grease to the pin (4) to prevent its dropping off.



Y4–D130

   b. Install the guide (3) in the cylinder block.
      - Apply grease to the spherical part of the guide.
   c. Attach the piston (6) to the retainer (5), and install the retainer (5) in the cylinder block.



Y4–D131

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Symptom	Probable Causes	Remedy
Can't be held in the spool neutral position (cylinder drops).	• Could be mistaken for a great amount of leakage in the cylinder.	• Check if it isn't just the cylinder's natural drop when the cylinder is held. If the problem is in the cylinder, disassemble and repair it.
	• The gap between the spool and body is large, so the amount of oil leaking from the spool is great.	• Replace the spool or replace the valve block assembly.
	• Spool won't return completely to the neutral position.	• Manually Operated : Check if there is something interfering with the link mechanism. Pilot Operated: Check the pilot pressure.
	• Foreign matter is biting into the port relief valve seat or the anti-cavitation valve seat and oil is bypassing. Or a seat is damaged.	• Disassemble and check, then overhaul or replace.
The load won't move. (Pressure won't increase.)	• Foreign matter is biting into the relief valve seat and oil is bypassing. Or the seat is damaged.	• Disassemble and check, then overhaul or replace.
	• The relief valve's adjustment screw is loose.	• Try tightening the adjustment screw. If it is loose, correct the setting and tighten the lock nut securely.
	• Foreign matter is biting into the port relief valve seat or the anti-cavitation valve seat and oil is bypassing. Or a seat is damaged.	• Disassemble and check, then overhaul or replace.
	• Spool stroke is not the specified stroke.	• Manually Operated: Check if there is something interfering with the link mechanism. Check if a pin or a pin hole in the link connection is worn. Pilot Operated: Check the pilot pressure.
	• Pump is damaged and no oil is discharged.	• Check if the pump is abnormal or not. If the pump is bad, replace it. Check if the cause of the abnormality is air being sucked in, deterioration of hydraulic oil or shafts not centered, etc.
Load doesn't move. (Pressure rises.)	• The load is too heavy.	• Compare with an object of the specified weight.
	• Mechanical resistance of connecting parts is great regardless of the hydraulic pressure in the operating unit.	• Check and replenish hydraulic oil, etc., modify or repair.
	• A large piece of foreign matter is trapped in the circuit or a pipe is bent, causing great resistance.	• Find the affected place and repair it.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

INSPECTION AND ADJUSTMENT

☞ “IV-91”

TROUBLESHOOTING

☞ “IV-92”

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

DISASSEMBLY AND ASSEMBLY

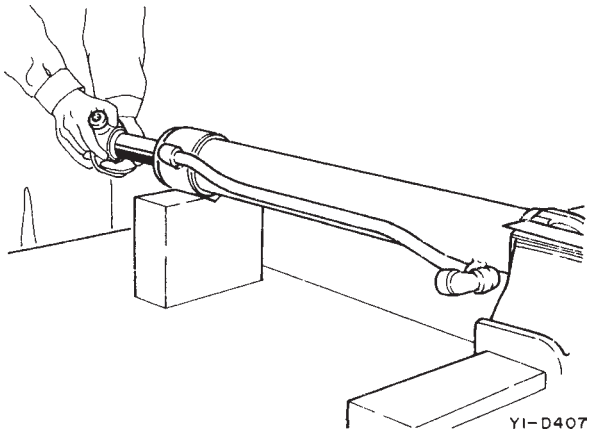
Special Tools
See the table of special tools at the back of this section for the jigs and tools used for disassembly and assembly.

General Cautions
- Carry out disassembly and assembly in a clean place and place the disassembled parts in a place where they will be kept clean at all times.
- Before disassembly, clean the outside surface of the cylinder thoroughly.
- In the disassembly and assembly operations, be careful not to scratch any part. Take particular caution with the sliding surfaces of parts.
- Clean all disassembled parts thoroughly with cleaning oil.
- Replace all seals with new parts.
- Apply a thin coating of hydraulic oil to seals before fitting them in place.
- After fitting, make sure the O-rings are not twisted.
- Apply clean hydraulic oil to each sliding portion before assembling them.

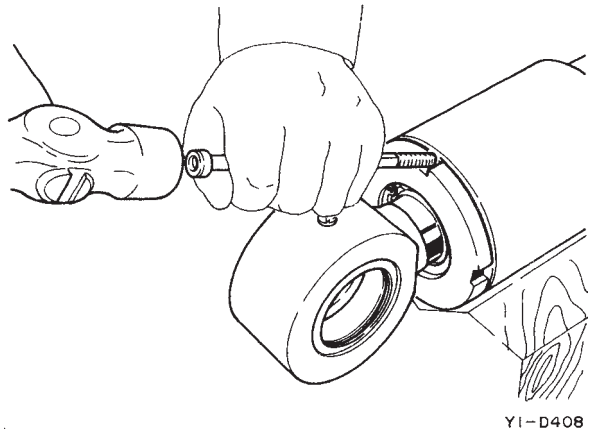
Disassembly
Cylinder Assembly

1. Fasten the clevis of the tube in a vice and place the other end on a support black made of wood to fasten the cylinder in a horizontal condition.

2. Drain out hydraulic oil remaining in the cylinder.
   - Move the piston rod gently to prevent the hydraulic oil from spraying out and scattering all over.



3. Free the locked portion of the rod cover.
   - Since the lock is integrated with the cylinder tube, be careful not to bend it or to scratch it when the lock is being freed.



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

TROUBLESHOOTING

Hydraulic Motor

Symptom	Probable Causes	Remedy
Does not move.	• Equipment other than the motor, counterbalance valve or speed reducer is malfunctioning.	• Check if the proper pressure is reached on the motor inlet port side, then check each device and repair if necessary.
	• Hydraulic oil is escaping due to abnormal wear of motor sliding parts. • Principal motor parts are malfunctioning due to damage.	• Replace the abnormally worn parts. • Replace the damaged parts.
Motor won't speed up.	• The proper volume of hydraulic oil is not being supplied to the motor due to the hydraulic pump, control valve, etc.	• Check if the proper pressure is reached on the motor inlet port side, then check each device and repair if necessary.
	• The motor's volumetric efficiency is dropping.	• Check if the sliding parts are abnormally worn, then repair or replace the worn parts.
Changes in rotational speed are great.	• High pressure hydraulic oil is leaking and flowing out of the drain port due to wear of the motor's sliding parts. • Bearings are worn.	• Replace the abnormally worn parts. • Replace the bearings if they are abnormally worn.
Oil is leaking.	• Oil is leaking due damage to oil seals or O-rings.	• Replace the oil seals and O-rings.

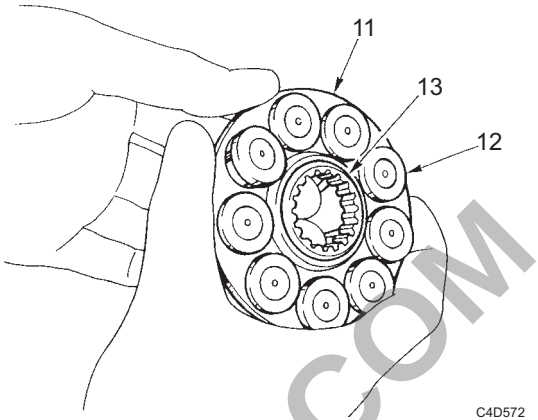
Counterbalance Valve

Symptom	Probable Causes	Remedy
Does not move or rotation is slow.	Spool does not switch. • No hydraulic oil is arriving. • Foreign matter is caught. • The orifice is clogged up.	 • Repair or replace the damaged piping. • Remove the foreign matter and repair or replace the damaged parts. • Clean it.
Won't stop or stopping is slow.	The spool won't return. • Foreign matter gets caught. • A spring is missing. • A spring is damaged. • The orifice is clogged up.	 • Remove the foreign matter and repair or replace the damaged parts. • Install the spring. • Replace the spring. • Clean it.
Shock is great when stopping.	Spool return is fast. • The spring seat is missing.	 • Install the spring seat.
Valve makes an abnormal noise.	The spool does not return. • Foreign matter gets caught. • A spring is damaged. • The orifice is clogged up.	 • Remove the foreign matter and repair or replace the damaged parts. • Replace the spring. • Clean it.

PREVIEW - YOUFIXTHIS.COM

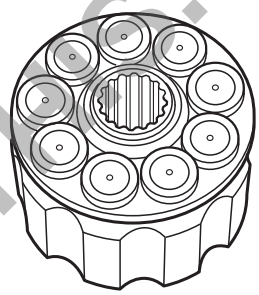
Download full manual at youfixthis.com

16. Mount the piston (12) and guide (13) on to the shoe holder (11) to assemble the shoe holder assembly.

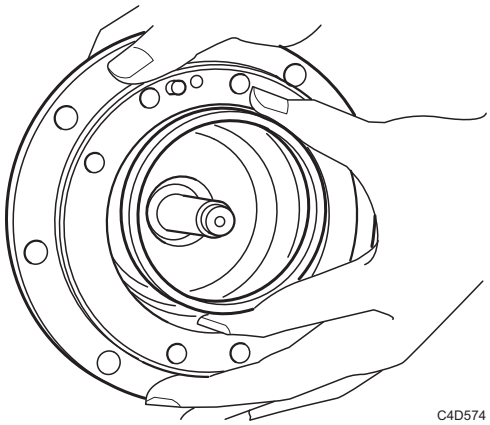


C4D572

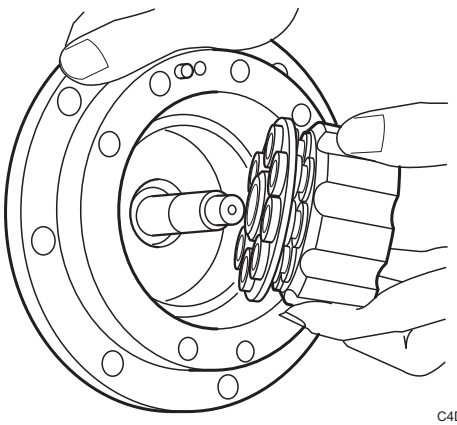
17. Mount the shoe holder assembly on the cylinder block to assemble the cylinder block assembly.


C4D573

18. Mount the brake spacer on the flange holder.


C4D574

19. Mount the cylinder block assembly on the flange holder.
    - Mount the cylinder block assembly in such a manner that the shoe will touch the swash plate.


C4D575

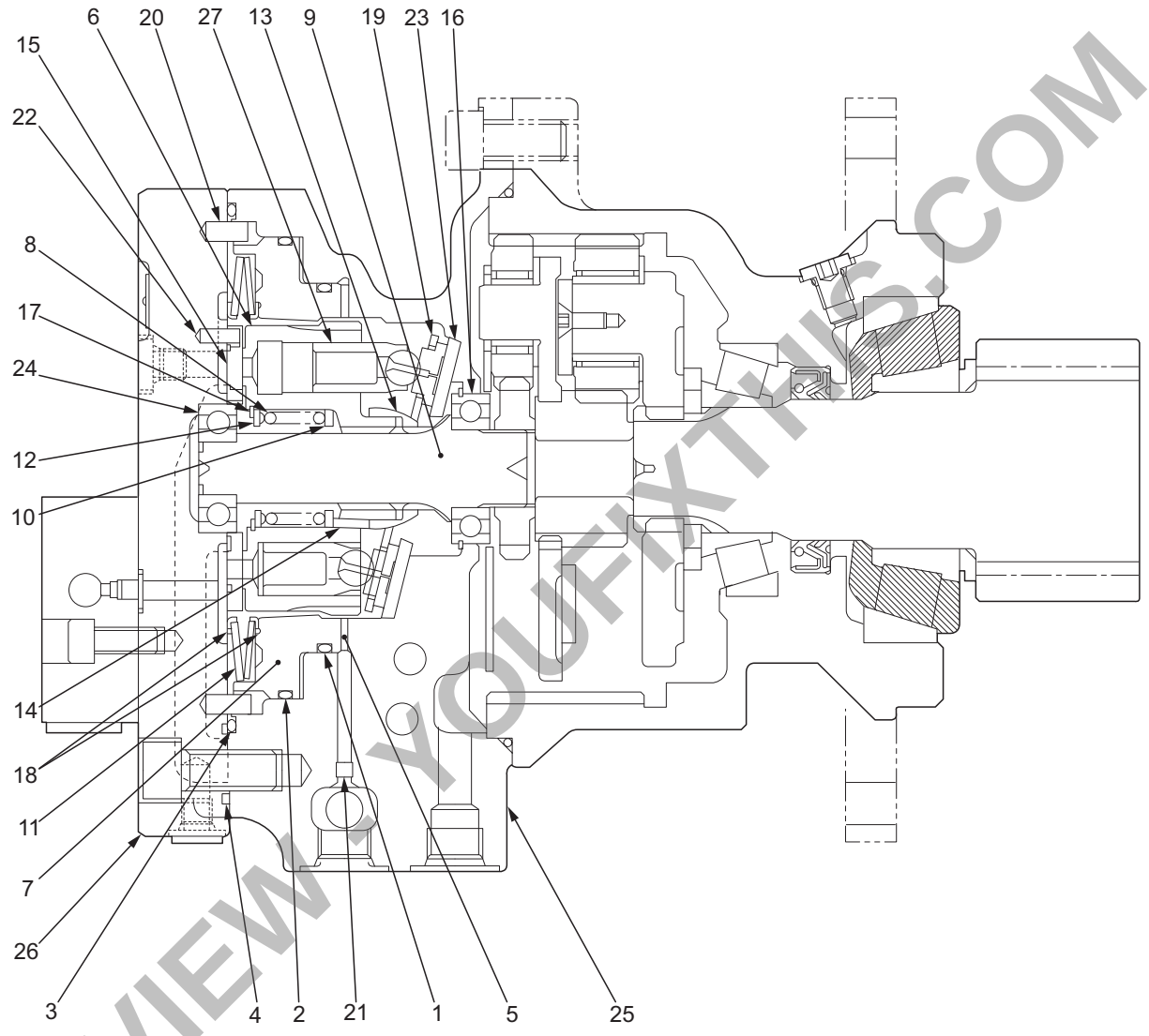
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

SLEW MOTOR (TB135)

CONSTRUCTION

Hydraulic Motor

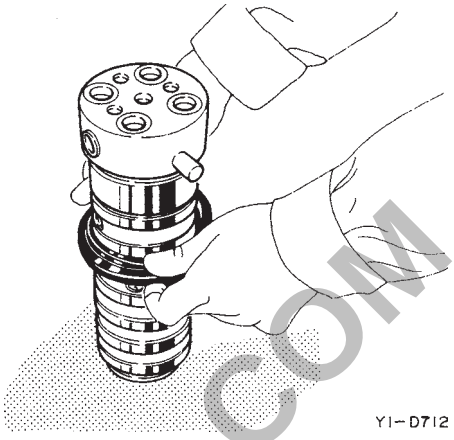


1. O-ring
2. O-ring
3. O-ring
4. O-ring
5. Disc
6. Cylinder Block
7. Brake Piston
8. Spring
9. Shaft
10. Retainer
11. Disk Spring
12. Retainer
13. Guide
14. Pin
15. Valve Plate
16. Bearing
17. Snap Ring
18. Spring Seat
19. Shoe Holder
20. Pin
21. Orifice
22. Pin
23. Swash Plate
24. Bearing
25. Housing
26. Cover
27. Piston

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

4. Remove the dust seal from the shaft.



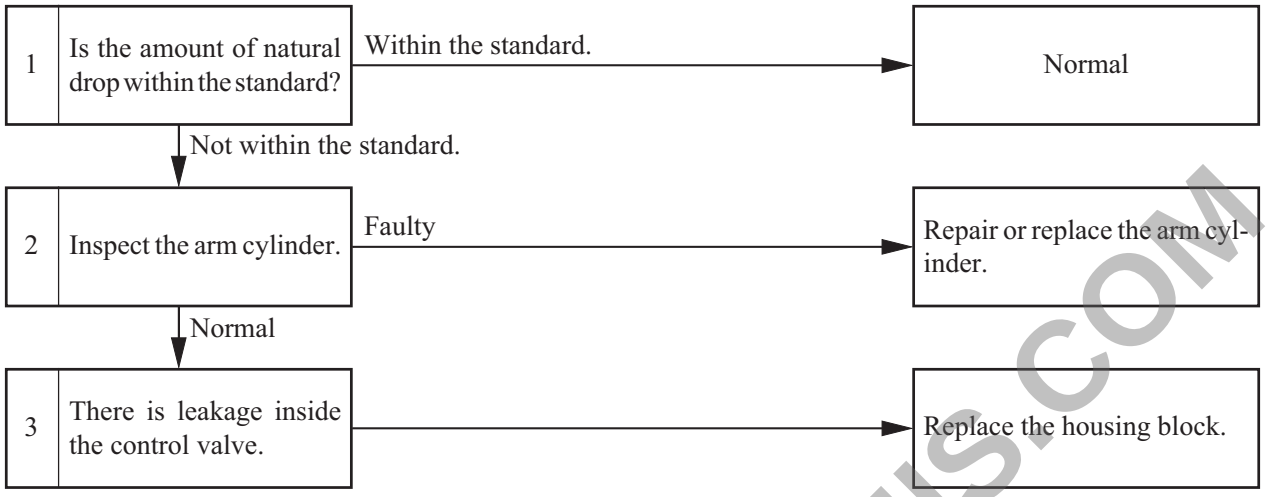
5. Remove the seals from the inside diameter of the hub.
   - Check the positions of the seals in the structural drawing.
   - Use an O-ring tooth or eyeleteer with a sharp point on the end, etc.
   - Do not deform or bend the slipper seal strongly in any one place.
   - During assembly, O-rings should not be twisted when they are fitted in place.



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

THE AMOUNT OF ARM NATURAL DROP IS GREAT.



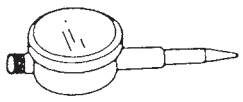
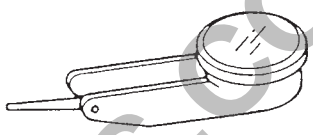
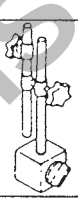
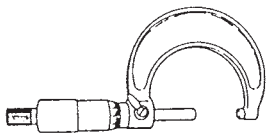
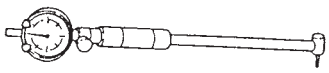
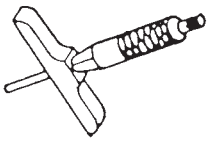
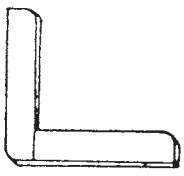
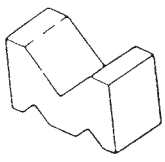
1. Is the amount of natural drop within the standard?
   ☞ "II. Specifications, Standards for Judging Performance"

2. Inspect the arm cylinder.
   ☞ "V-39"

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

5-2. Measuring instruments

No.	Instrument name	Purpose of use	Illustration
1	Dial gauge	Measures bent shafts, distorted flat surface, gaps, etc.	
2	Test indicator	Measures the limited small portions and deep portions unmeasurable with dial gauge.	
3	Magnetic stand	Used together with the dial gauge: holds the dial gauge at different angles.	
4	Micrometer	Measures the outside diameter of the crankshaft, piston, and piston pin, etc.	
5	Cylinder gauge	Measures the inside diameter of the cylinder liner, connecting rod metal, etc.	
6	Vernier callipers	Measures the outside diameter, depth, thickness, width, etc. of various items.	
7	Depth Micrometer	Measures the sinkage of the valve.	
8	Square	Measures inclination of valve spring, squareness of engine parts, etc.	
9	V-block	Measures bent shaft.	

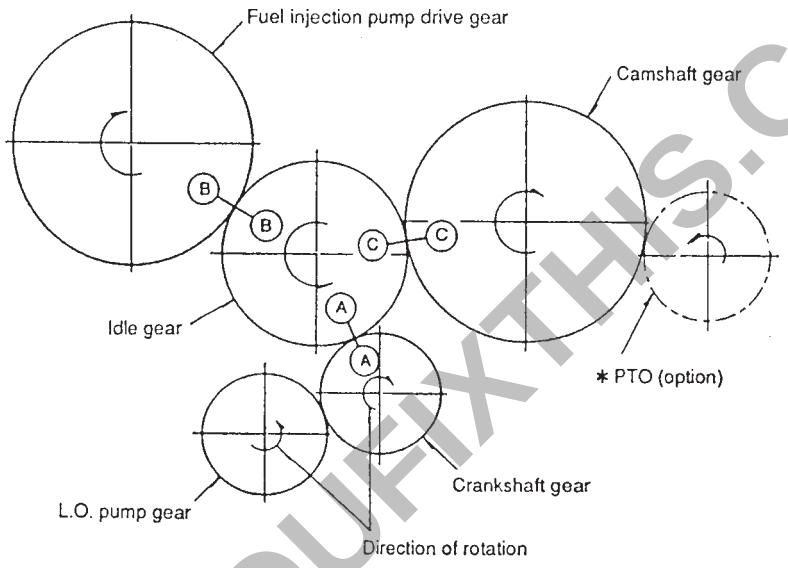
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

4. Gear train

After installing each gear, make sure that aligning marks Ⓐ,Ⓑ and Ⓒ of the idle gear are aligned with those of the fuel injection pump gear, cam gear and crank gear.

(View the gear case)



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

3. Inspection of governor lever shaft assembly

(1) Measure the clearance between the governor lever shaft and bushing, and replace if it is near the wear limit.

(mm)

	Standard dimension	Standard clearance	Limit
Governor lever shaft outer dia	$8^{-0.005}_{-0.014}$	0.065 ~0.124	0.5
Bushing inner dia.	$8^{+0.11}_{+0.06}$		

(2) Inspect the shifter contact surface, and if it is worn or scorched, remove the spring pin to disassemble and replace the shifter only.

(3) Check link parts for bends or kinks that will cause malfunctioning, and replace if it is faulty.

*1. *Side gap on top of governor lever shaft.*

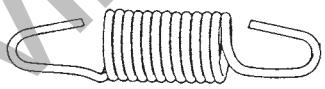
(mm)

Standard side gap	0.4

2. *Replace the governor lever, tension lever, bushing, shifter and angleich spring as an assembly.*

4. Inspection of springs

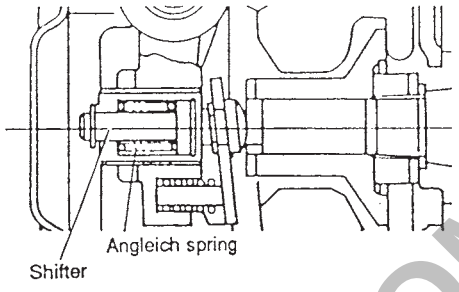
(1) Check the governor spring and other springs and replace if they are broken, settled or corroded.



5. Inspection of angleich spring assembly

(1) Inspect the sliding surface of shifter and replace if it is faulty.

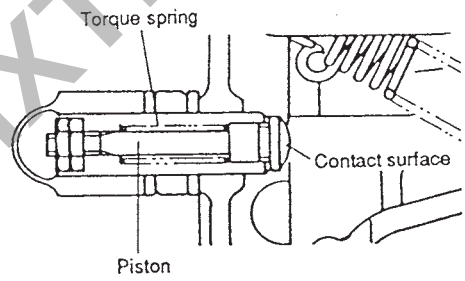
(2) Replace the angleich spring assembly if the angleich spring is broken.



6. Inspection of torque spring assembly

(1) Inspect the tip of the piston and contact surface for wear and replace if it is faulty.

(2) Replace the assembly if the torque spring is broken.



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

(7) 4TNV88

Engine name		Unit	4TNV88								
Engine specification class		-	CL	VM							
Type		-	Vertical, in-line, 4-cycle, water-cooled diesel engine								
Combustion chamber		-	Direct injection								
Number of cylinders		-	4								
Cylinder bore × stroke		mm × mm	88 × 90								
Displacement		L	2.190								
Continuous rating	Revolving speed	Min^{-1}	1500	1800	-						
	Output	kW (ps)	16.4 (22.3)	19.6 (26.7)	-						
Rated output	Revolving speed	Min^{-1}	1500	1800	2000	2200	2400	2500	2600	2800	3000
	Output	kW (ps)	18.0 (24.5)	21.6 (29.4)	24.1 (32.7)	26.5 (36.0)	28.8 (39.2)	30.1 (40.9)	31.3 (42.5)	33.7 (45.8)	35.4 (48.1)
Max. no-load speed (± 25)		min^{-1}	1600	1895	2180	2400	2590	2700	2810	2995	3210
Ignition order		-	1-3-4-2-1 (No.1 cylinder on flywheel side)								
Power take off		-	Flywheel								
Direction of rotation		-	Counterclockwise (viewed from flywheel)								
Cooling system		-	Radiator								
Lubrication system		-	Forced lubrication with trochoid pump								
Starting system		-	Electric								
Applicable fuel		-	Diesel oil-ISO 8217 DMA, BS 2869 A1 or A2 (cetane No.45 min.)								
Applicable lubricant		-	API grade class CD or CF								
Lubricant capacity (oil pan) *	Total	L	7.4								
	Effective	L	3.4								
Cooling water capacity (engine only)		L	2.7								
Engine dimensions ** * (with wheel housing)	Overall length	mm	683	658							
	Overall width	mm	498.5								
	Overall height	mm	618								
Engine mass (dry) *,** (with flywheel housing)		kg	183	170							
Cooling fan (std.) *		mm	370 mm O/D, 6 blades pusher type F								
Crankshaft V pulley diameter & Fun V pulley diameter (std.) *		mm	120 × 90	110 × 110							

* Items marked * may differ from the above depending on an engine installed on a machine unit.
** Engine mass and dimensions without radiator

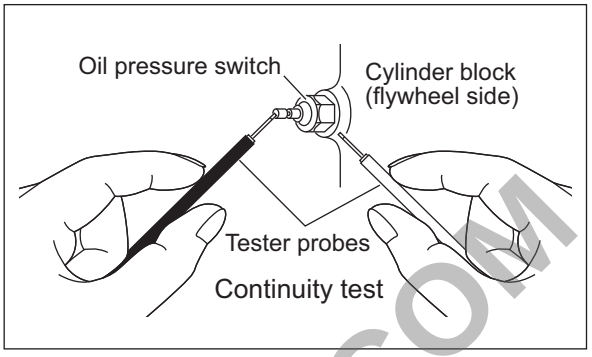
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

2.4 Sensor inspection

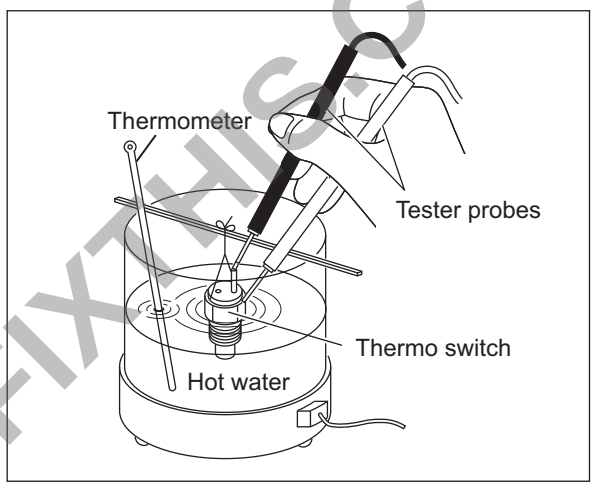
2.4.1 Oil pressure switch

Disconnect the connector from the oil pressure switch. Keep the voltameter probes in contact with the switch terminal and cylinder block while operating the engine. It is abnormal if circuit is closed.



2.4.2 Thermo switch

Place the thermo switch in a container filled with antifreeze or oil. Heat it while measuring the fluid temperature. The switch is normal if the voltameter shows continuity when the fluid temperature is
107 to 113 deg C.

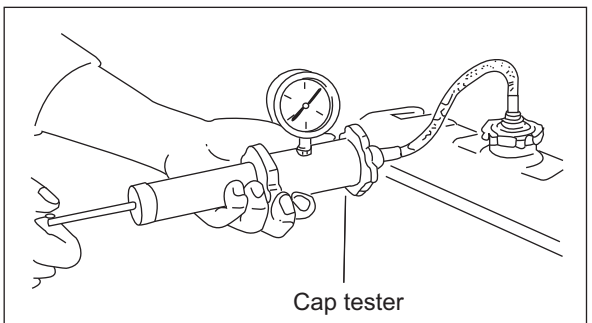


2.5 Water leak check in cooling water system

Check coolant water leakage from the cooling water system visually. If any problem is found, Inspect as follows.

1)Fill coolant water to the normal level in the radiator, and install the cap tester on the radiator.

2)Operate the manual pump to set the pressure to 0.09 ± 0.015 MPa (0.9 ± 0.15 kgf/cm^2). If the cap tester pressure gage reading drops then, water is leaking from the cooling water system. Check the water leaking point.



Water leak check in cooling water system

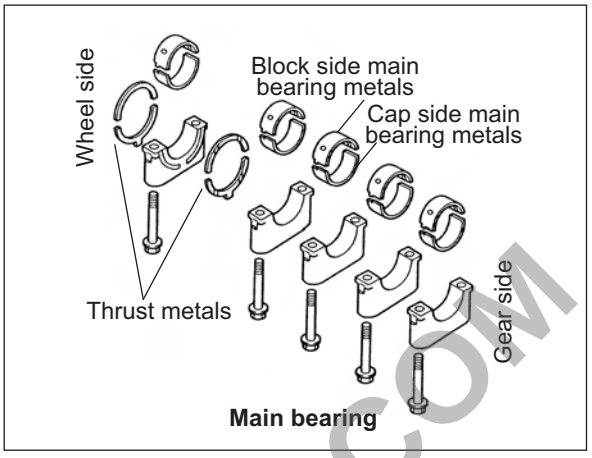
PREVIEW - YOUFIXTHIS.COM

(R.1)

Download full manual at youfixthis.com

[Disassemble]

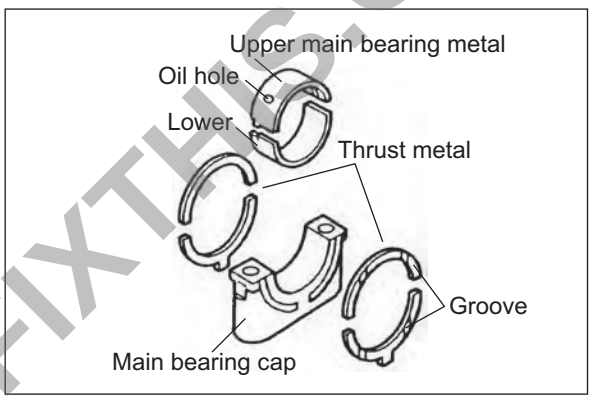
- Remove the bearing caps, cap side bearings, and thrust metals. Place each thrust metal with identification of the position and direction.
  The position number of reassembling is punched on a metal cap (except for both ends) and a cylinder block.



Main bearing

[Reassemble]

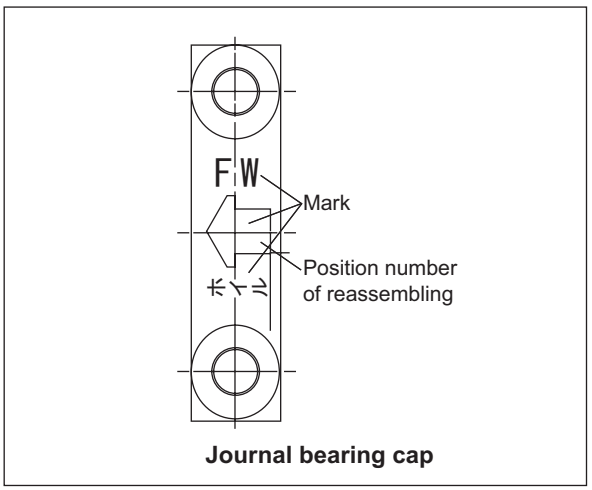
- Carefully install each thrust metal so that the grooved one is positioned away from the cap.
- Do not confuse the upper and lower main bearing metals. The upper main bearing metal (block side) has an oil hole, and the lower one does not. The “arrow” marks on the cap shall face the flywheel. Tighten main bearing cap bolts.



Main bearing cap bolt tightening torque
(apply lube oil)

N•m (kgf•m)

Model	Standard
3TNV82A	76.4 to 80.4 (7.8 to 8.2)
TNV848 to 8	93.2 to 98.1 (9.5 to 10.5)
4TNV94L•98	108.1 to 117.9 (11.0 to 12.0)
4TNV106(T)	186.2 to 205.8 (19.0 to 21.0)



Journal bearing cap

Point5: Crankshaft

[Disassemble]

- Remove the crankshaft. Remove each main bearing metal upper (block side) and pair it with the metal cap side lower metal.

⚠ CAUTION

Carefully prevent damage to the bearing or finger injury when removing the crankshaft because it is heavy.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

8.6 Reassembly procedure

8.6.1 Preparation for reassembly

1)Prepare general tools, special tools, liquid gasket (Three Bond No.1207) and Locktite No.242 before reassembling the turbocharger.

2)Always replace the following parts with new ones:

- Turbine side seal ring 1pc.
- Compressor side seal ring (large) 1pc.
- Compressor side seal ring (small) 1pc.
- M3 machine screws 3pcs.
- M3 machine screws 4pcs.

8.6.2 Reassembly

(1) Floating bearing installation

1)Use the snap ring pliers and install inner circlip 16 on bearing housing 15.

2)Install floating bearing 5 in bearing housing 15.

3)Use the snap ring pliers and install outer circlip 16 on bearing housing 15.

Note:

1)The circlip joint shall be positioned as shown in the figure at right above.

The rounded side of the circlip shall face the bearing.

2)Apply lubricating oil on the floating bearing before reassembly.

(2) Turbine shaft installation

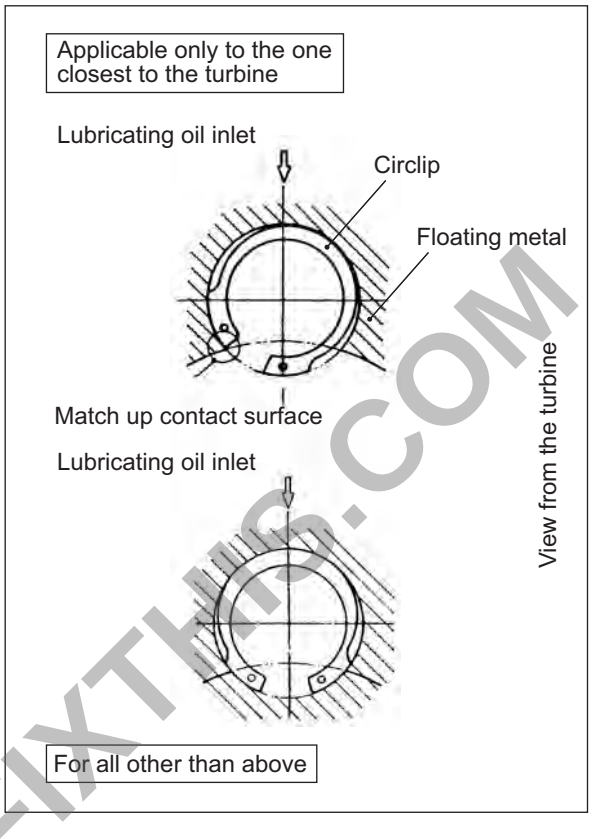
1)Fit the seal ring onto turbine shaft 1.

2)Install heat insulating plate 20 on the turbine side of bearing housing 15.

3)Apply lubricating oil on the journal portion of the turbine shaft and insert the shaft from the turbine side of bearing housing 15.

Note: Carefully operate so as not to damage the floating bearing by the turbine shaft.

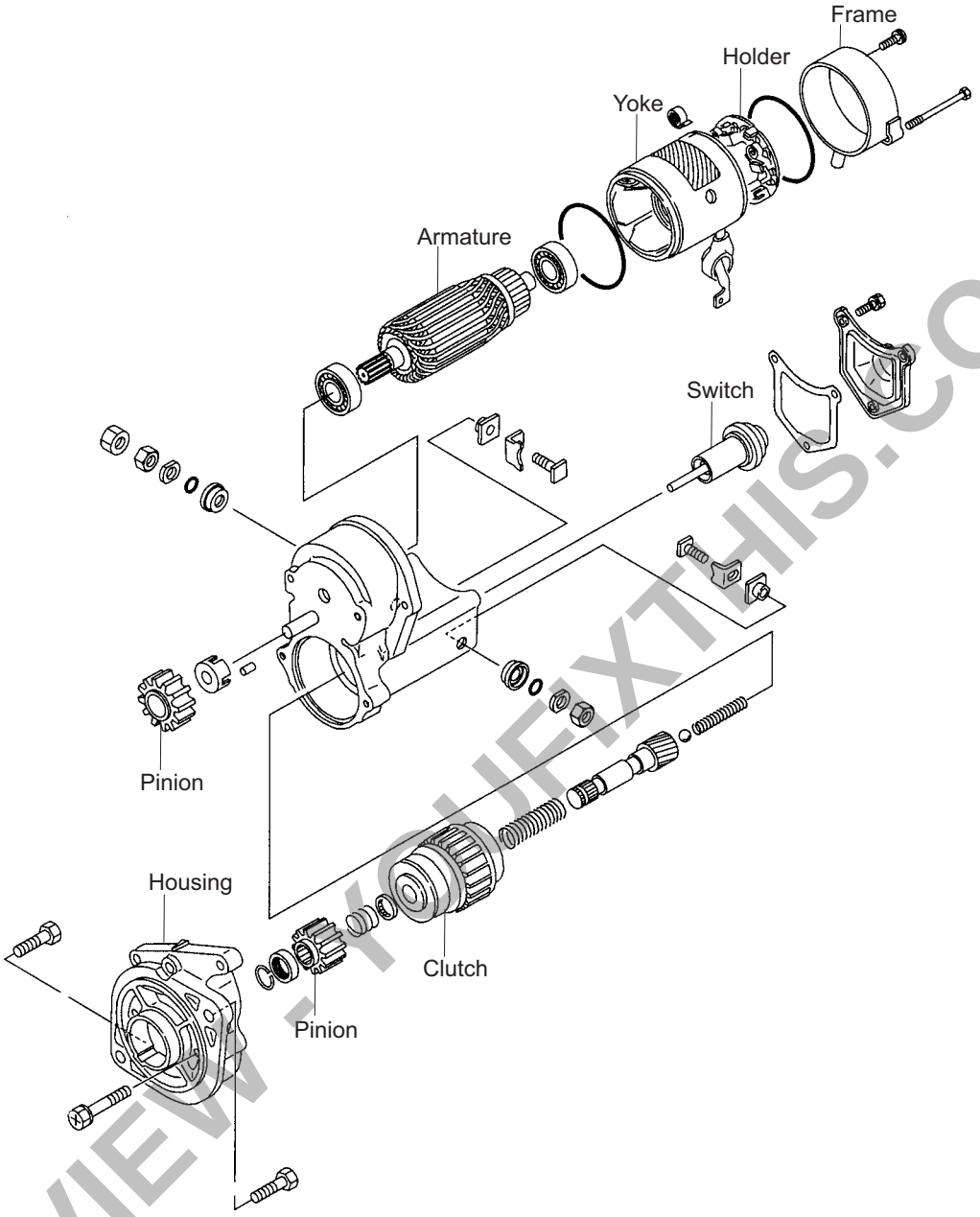
The seal ring joint shall be positioned on the lubricating oil inlet side after centering with the turbine shaft.



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

9.3.3 Disassembly drawing

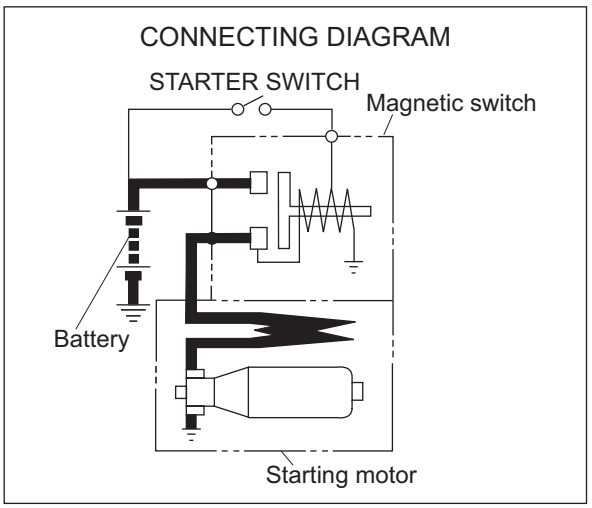


9.3.4 Connecting diagram of a starting motor

1)When a starter switch is turned on, a magnet switch is charged, and a moving core is absorbed, and a pinion clutch is moved forward through a lever, and the pinion engages with a ring gear.

2)When the pinion engages the ring gear, because a main contact point is closed and the main electric current flows and a pull coil is short-circuited by the main contact point and it stops being charged with electricity, the pinion is kept at the position by a holding coil during the start.

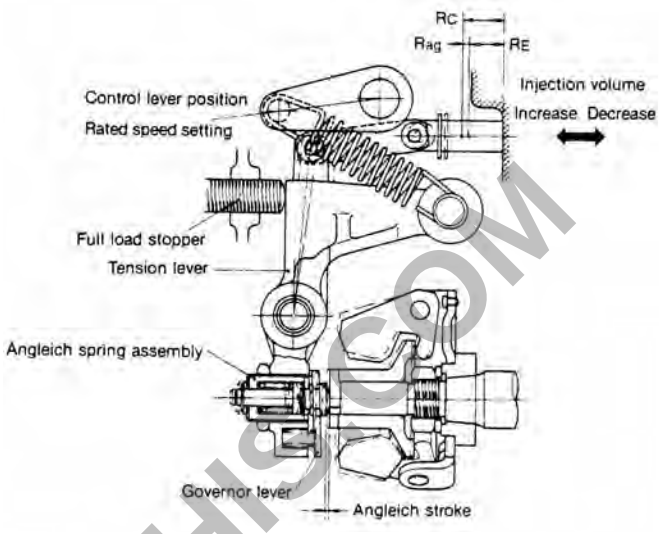
3)When the stater switch is turned off, the main contact point becomes open, and the pinion clutch is returned to the stop position by a return spring.

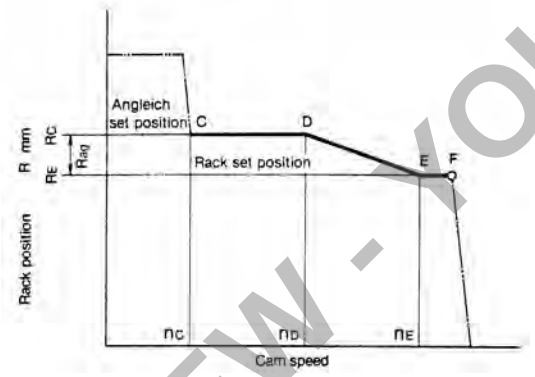


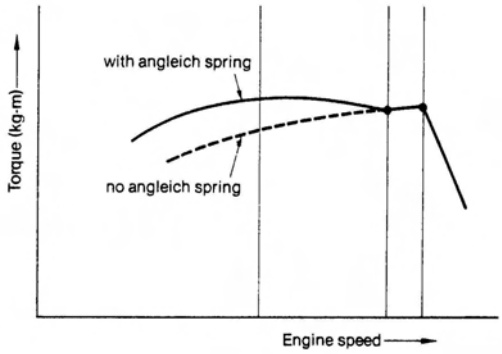
(R.1)

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

The angleich spring is mounted to the part of the tension lever (however some engine are not equipped with an angleich spring depending on usage and speed range utilized).
When engine speed is low, the governor weight cannot compress the angleich spring as the angleich spring load is lager than the governor weight, thrust load, and the control rack is held at a position (R_C) to increase injection volume.
Furthermore, as engine speed rise, the angleich spring is gradually compressed as governor weight thrust load increases and exceeds angleich load, before high speed control is effected. When the governor lever and the bottom of the tension lever come into contact (end of angleich stroke), injection volume is reduced by that amount, and the rack reaches the rated position (R_E).







PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW ONLY

You're viewing 25 of 1087 pages

The full manual includes:

- All 1087 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

Takeuchi TB125, TB135, TB145 workshop

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual