WSM

WORKSHOP MANUAL
TRACTOR
L48
[TL1150 FRONT LOADER]
[BT1100 BACKHOE]

Kubota

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

GENERAL

CONTENTS

1. FEATURE G-1
2. TRACTOR IDENTIFICATION G-2
3. GENERAL PRECAUTIONS G-3
4. HANDLING PRECAUTIONS FOR ELECTRICAL PARTS AND WIRING .. G-4
   [1] WIRING G-4
   [2] BATTERY G-6
   [3] FUSE G-6
   [4] CONNECTOR G-6
   [5] HANDLING OF CIRCUIT TESTER G-7
5. LUBRICANTS, FUEL AND COOLANT G-8
6. TIGHTENING TORQUES G-9
   [1] GENERAL USE SCREWS, BOLTS AND NUTS G-9
   [2] STUD BOLTS G-10
   [3] HYDRAULIC FITTINGS G-10
7. MAINTENANCE G-12
8. CHECK AND MAINTENANCE G-13
   [1] DAILY CHECK G-13
   [2] CHECK POINTS OF INITIAL 50 HOURS G-14
   [3] CHECK POINT OF EVERY 50 HOURS G-18
   [4] CHECK POINTS OF EVERY 100 HOURS G-21
   [5] CHECK POINTS OF EVERY 200 HOURS G-26
   [6] CHECK POINT OF EVERY 250 HOURS G-28
   [7] CHECK POINTS OF EVERY 400 HOURS G-29
   [8] CHECK POINTS OF EVERY 600 HOURS G-29
   [9] CHECK POINTS OF EVERY 800 HOURS G-29
   [10] CHECK POINTS OF EVERY 1500 HOURS G-29
   [11] CHECK POINTS OF EVERY 3000 HOURS G-29
   [12] CHECK POINTS OF EVERY 1 YEAR G-29
   [13] CHECK POINTS OF EVERY 2 YEARS G-29
   [14] OTHERS G-32
9. SPECIAL TOOLS G-34
   [1] SPECIAL TOOLS FOR ENGINE G-34
   [2] SPECIAL TOOLS FOR TRACTOR G-42
10. TIRES G-46
   [1] TIRE PRESSURE G-46
   [2] TREADS G-46
   [3] TIRE LIQUID INJECTION G-47
   [4] IMPLEMENT LIMITATIONS G-49

PREVIEW - YOUFIXTHIS.COM

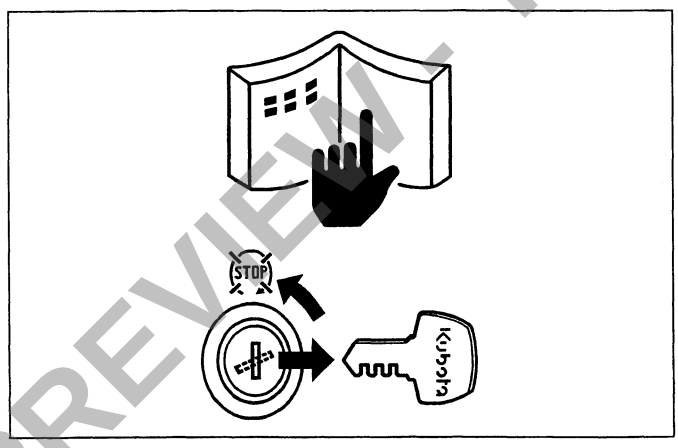
Download full manual at youfixthis.com

⚠ SAFETY FIRST

This symbol, the industry's "Safety Alert Symbol", is used throughout this manual and on labels on the machine itself to warm of the possibility of personal injury. Read these instructions carefully.

It is essential that you read the instructions and safety regulations before you attempt to repair or use this unit.

⚠ **DANGER**	**: Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.**
⚠ **WARNING**	**: Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.**
⚠ **CAUTION**	**: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.**
■ **IMPORTANT**	**: Indicates that equipment or property damage could result if instructions are not followed.**
■ **NOTE**	**: Gives helpful information.**



BEFORE SERVICING AND REPAIRING

- Read all instructions and safety instructions in this manual and on your machine safety decals.
- Clean the work area and machine.
- Park the machine on a firm and level ground, and set the parking brake.
- Lower the implement to the ground.
- Stop the engine, and remove the key.
- Disconnect the battery negative cable.
- Hang a **"DO NOT OPERATE"** tag in operator station.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

SPECIFICATIONS

Model			L48
Engine gross power			35.8 kW (48 HP)*
PTO power			28.0 kW (37.5 HP)*
Engine	Model		V2403-M-ETLB
	Type		Vertical, water-cooled, 4-cycle diesel
	No. of cylinders		4
	Bore and stroke		87 × 102.4 mm (3.4 × 4.0 in.)
	Total displacement		2434 cm^3 (148.5 cu.in.)
	Rated revolution		2600 rpm
	Fuel		Diesel fuel No. 1 [below –10 °C (14 °F)], Diesel fuel No. 2 [above –10 °C (14 °F)]
	Starter		Electric starter with battery, glow plug, 12 V, 2.0 kW
	Lubrication		Forced lubrication by trochoid pump
	Cooling		Water with pressurized radiator
	Battery		12 V
Capacities	Fuel tank		50 L (13.2 U.S.gals, 11.0 Imp.gals.)
	Engine crankcase (with filter)		7.4 L (7.8 U.S.qts., 6.5 Imp.qts.)
	Engine coolant		7.0 L (7.4 U.S.qts., 6.2 Imp.qts.)
	Transmission case		51 L (13.5 U.S.gals, 11.2 Imp.gals.)
	Front axle case		8 L (8.5 U.S.qts., 7.0 Imp.qts.)
Tires		Front	10-16.5 R4 HD
		Rear	17.5L-24 R4
Dimensions	Overall length (without 3P)		3105 mm (122.2 in.)
	Overall width		1906 mm (75.0 in.)
	Overall height with ROPS and FOPS		2385 mm (93.5 in.)
	Wheel base		1880 mm (74.0 in.)
	Min. ground clearance		370 mm (14.6 in.) at transmission case
	Tread	Front	1363 mm (53.7 in.)
		Rear	1462 mm (57.6 in.)
Weight (with ROPS and FOPS, main frame)			2192 kg (4833 lbs)
PTO shaft			Transmission case rear
Rear PTO			SAE 1-3/8, 6 splines (with overrunning clutch) (540 rpm at 2436 engine rpm)
Clutch			Dry single plate
Steering			Hydrostatic power steering
Transmission			Hydrostatic transmission (3 speeds)
Min. turning radius (without brake)			3.2 m (10.5 feet)
Brake			Right and left independent with interlocking device
Differential			Bevel gear

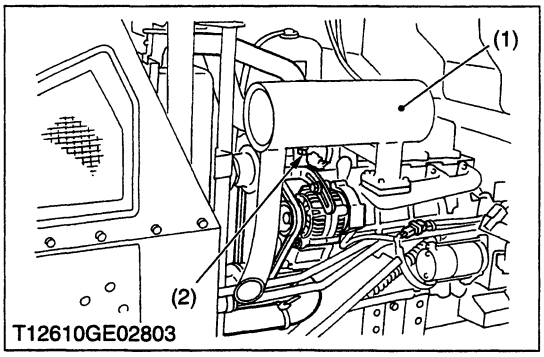
NOTE: * Manufacture's estimate
The company reserves the right to change the specifications without notice.

W1028103

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

[6] CHECK POINT OF EVERY 250 HOURS



(1) Muffler (2) Cleanout Plug

W1035375

Cleaning Spark Arrester Muffler

This tractor is equipped with an USDA Forest Service approved spark arrester muffler which requires periodic maintenance to ensure it's effectiveness.

1. Clean the spark arrester as following procedure.

■ **Cleaning procedure**

⚠ CAUTION

- **Before touching any part of an exhaust system, be absolutely sure that it has had sufficient time to cool.**
- **Always wear safety goggles and a (face) mask.**
- **Keep head and face away from possible drainage.**
- **The particulate matter contained in the muffler contains chemicals that are harmful to people, animals and marine life.**
- **Do not start engine, when you are cleaning.**

If you have industrial vacuum cleaner, you should do maintenance method A.
If you don't have industrial vacuum cleaner, you should do maintenance method B.
Drainage of accumulated particles may be accomplished following the steps listed below.

Method A

1. Remove the cleanout plug (2) (pipe plug) on the bottom half of the spark arrester muffler catching in a tray. Some particles may begin to drain out at this time. Soon mixed with condensation or other oily liquids may also empty out at this time.
2. Without causing deformation (or any type of damage to the spark arrester) repeatedly tap on the arrester near the cleanout plug. This may be enough to begin drainage of the spark trap.
3. Utilize industrial vacuum cleaner to complete the cleanout.
4. Replace the cleanout plug (2).
5. Dispose of the accumulated particles.

Method B

A new muffler flange gasket (Part No.T0070-1642-0) is required.

1. Prepare to collect the particulate that will be falling from the from the spark arrester trap by using a large sheet of paper, plastic sheet or similar material that may be disposed of with the particular wrapped inside.
2. Remove the muffler from the engine.
3. In a safe area take precautions to collect and properly dispose of the residue that will be falling from the spark arrester trap.
4. Keep hands and face away and do not inhale the particulate (soot) drainage.
5. Remove the clean out plug (2) (pipe plug) on the bottom of the muffler, some particles or particles mixed with oily condensate may also empty at this time. (Clear the drain hole if it is blocked.)
6. Without causing deformation or any type of damage to the spark arrester muffler, or heat shield, repeatedly tap with a piece of wood on the side of the muffler and near the drain port and shake vigorously to help the draining process.
7. Replace the clean-out plug (2) and reinstall the muffler on the engine with a new gasket.
8. Clean up and dispose of drained particulate properly.

■ **IMPORTANT**

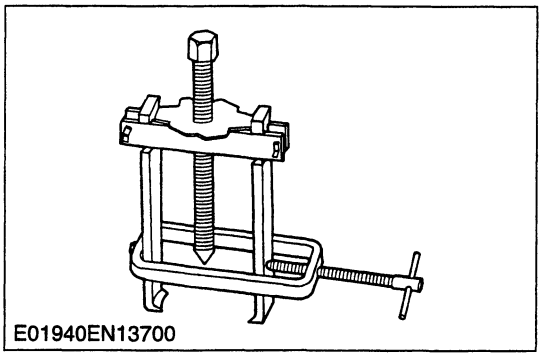
- **Visually check the muffler for cracks or holes in the body, weldment or pipes at regular intervals.**
- **Replace the entire muffler is it is damaged.**
- **Do not operate the tractor with a damaged muffler.**

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

9. SPECIAL TOOLS

[1] SPECIAL TOOLS FOR ENGINE

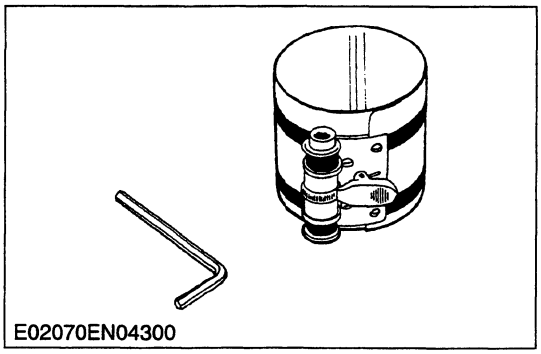

E01940EN13700

Special Use Puller Set

Code No: 07916-09032

Application: Use exclusively for pulling out bearing, gears and other parts with ease.

W1024050

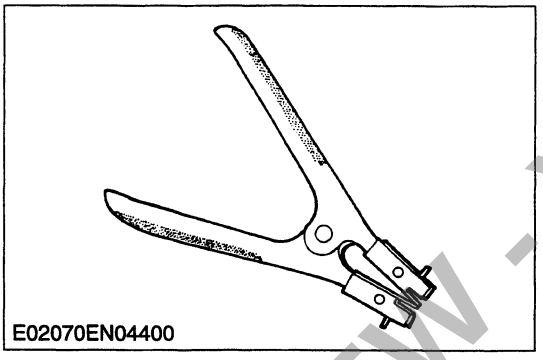

E02070EN04300

Piston Ring Compressor

Code No: 07909-32111

Application: Use exclusively for pushing in the piston with piston rings into the cylinder.

W1024100

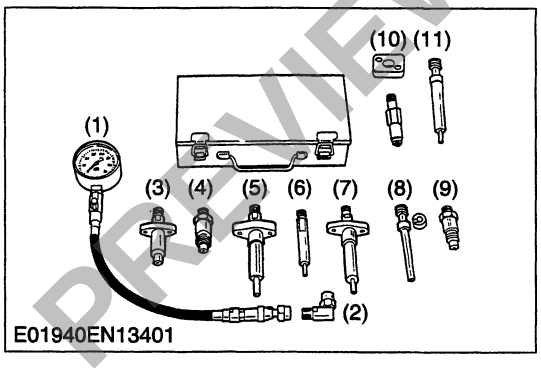

E02070EN04400

Piston Ring Tool

Code No: 07909-32121

Application: Use exclusively for removing or installing the piston ring with ease.

W1024150



E01940EN13401

Diesel Engine Compression Tester

Code No: 07909-30208 (Assembly), 07909-30934 (A to F), 07909-31211 (E and F), 07909-31231 (H), 07909-31251 (G), 07909-31271 (I), 07909-31281 (J)

Application: Use to measure diesel engine compression and diagnostics of need for major overhaul.

(1) Gauge
(2) **L** Joint
(3) Adaptor **A**
(4) Adaptor **B**
(5) Adaptor **C**
(6) Adaptor **E**
(7) Adaptor **F**
(8) Adaptor **G**
(9) Adaptor **H**
(10) Adaptor **I**
(11) Adaptor **J**

W1024200

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

[7] CHECK POINTS OF EVERY 400 HOURS

Changing Transmission Fluid

1. See page G-15.

W1036512

Changing Front Axle Case Oil

1. See page G-17.

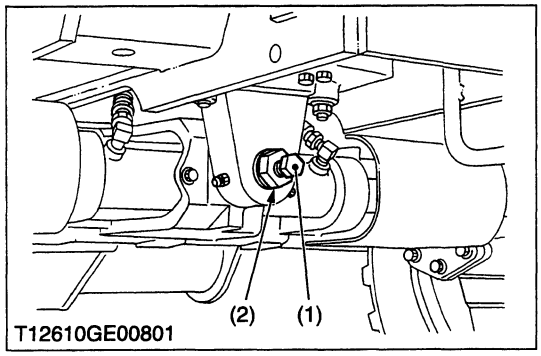
W1036559

Replacing Fuel Filter Element

1. See page G-22.

W1036604

[8] CHECK POINTS OF EVERY 600 HOURS



Adjust Front Axle Pivot

1. Loosen the lock nut (2), tighten the adjusting screw (1) all the way, and then loosen the adjusting screw (1) by 1/6 turn.
2. Retighten the lock nut (2).

■ **NOTE**

- **If the axle pivot pin adjustment is not correct, front wheel vibration can occur causing vibration in the steering wheel.**

(1) Adjusting Screw (2) Lock Nut

W1036668

[9] CHECK POINTS OF EVERY 800 HOURS

Checking Valve Clearance

1. See page 1-S20.

W1036805

[10] CHECK POINTS OF EVERY 1500 HOURS

Checking Fuel Injection Nozzle Injection Pressure

1. See page 1-S53.

W1036874

[11] CHECK POINTS OF EVERY 3000 HOURS

Checking Injection Pump

1. See page 1-S51.

W1036957

[12] CHECK POINTS OF EVERY 1 YEAR

Replacing Air Cleaner Primary Element and Secondary Element

1. Replace the both primary and secondary elements. Refer to **"Cleaning Air Cleaner Primary Element"**. (See page G-21.)

W1037077

[13] CHECK POINTS OF EVERY 2 YEARS

Replacing Fuel Hose

1. Replace the fuel hoses and clamps, if necessary. Refer to **"Checking Fuel Line"**. (See page G-25.)

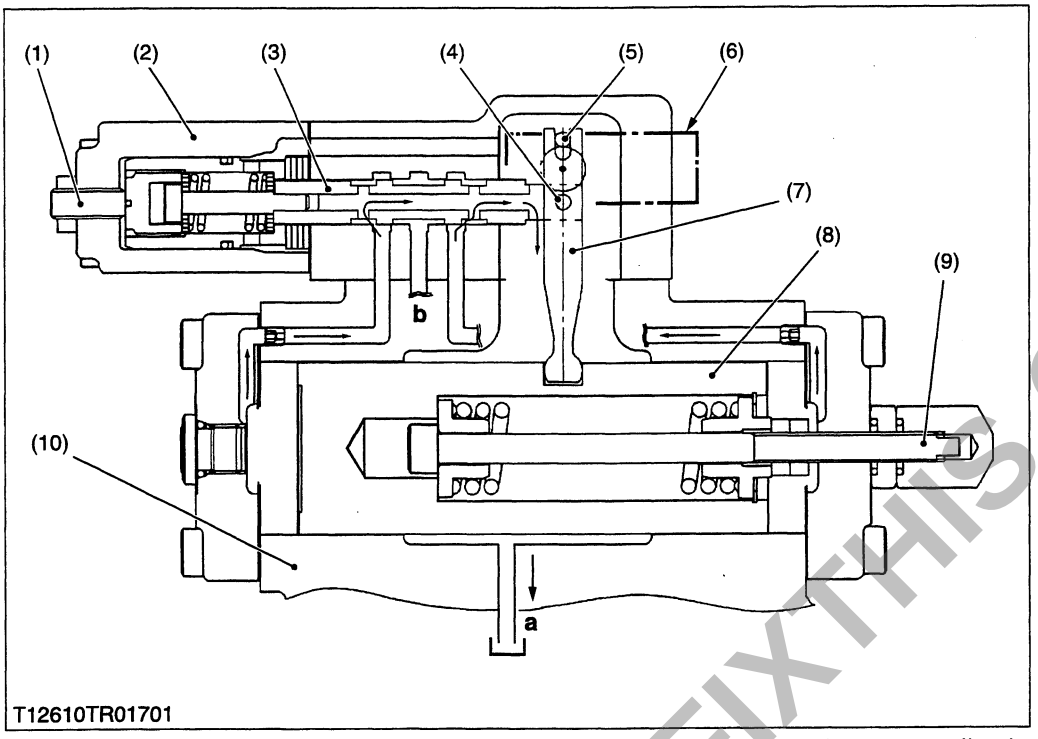
W1037148

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

■ Regulator and Servo Piston

i) Control Lever at Neutral



T12610TR01701

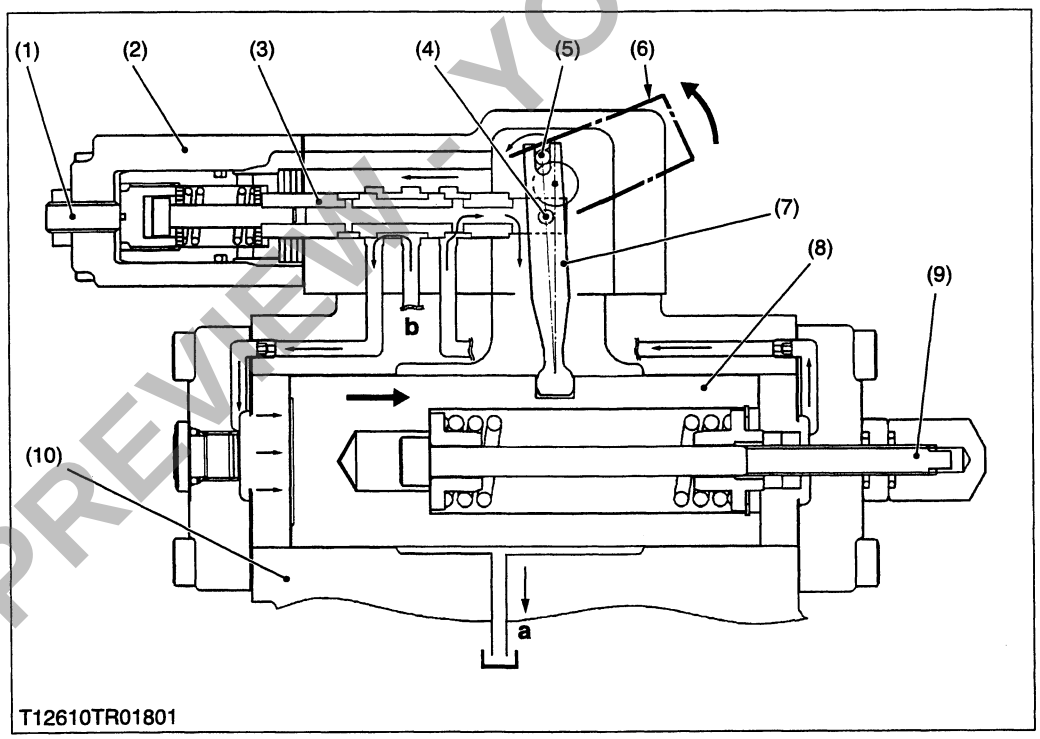
(1) Servo Adjusting Screw
(2) Regulator Assembly
(3) Spool
(4) Pin **B** (Fixed with Spool)
(5) Pin **A** (Fixed with Control Lever)
(6) Control Lever
(7) Feedback Lever
(8) Servo Piston
(9) Piston Adjusting Screw
(10) HST Housing

a : Drain to HST Housing
b : From Bypass Pipe (Pilot Pressure)

W1015772

The spool (3) is situated at the neutral position that is preset with the servo adjusting screw (1). Both ends of the servo piston (8) get connected to the drain port and held at the neutral position that is preset with piston adjusting screw (9).

ii) Control Lever Activated (First Step)



T12610TR01801

(1) Servo Adjusting Screw
(2) Regulator Assembly
(3) Spool
(4) Pin **B** (Fixed with Spool)
(5) Pin **A** (Fixed with Control Lever)
(6) Control Lever
(7) Feedback Lever
(8) Servo Piston
(9) Piston Adjusting Screw
(10) HST Housing

a : Drain to HST Housing
b : From Bypass Pipe (Pilot Pressure)

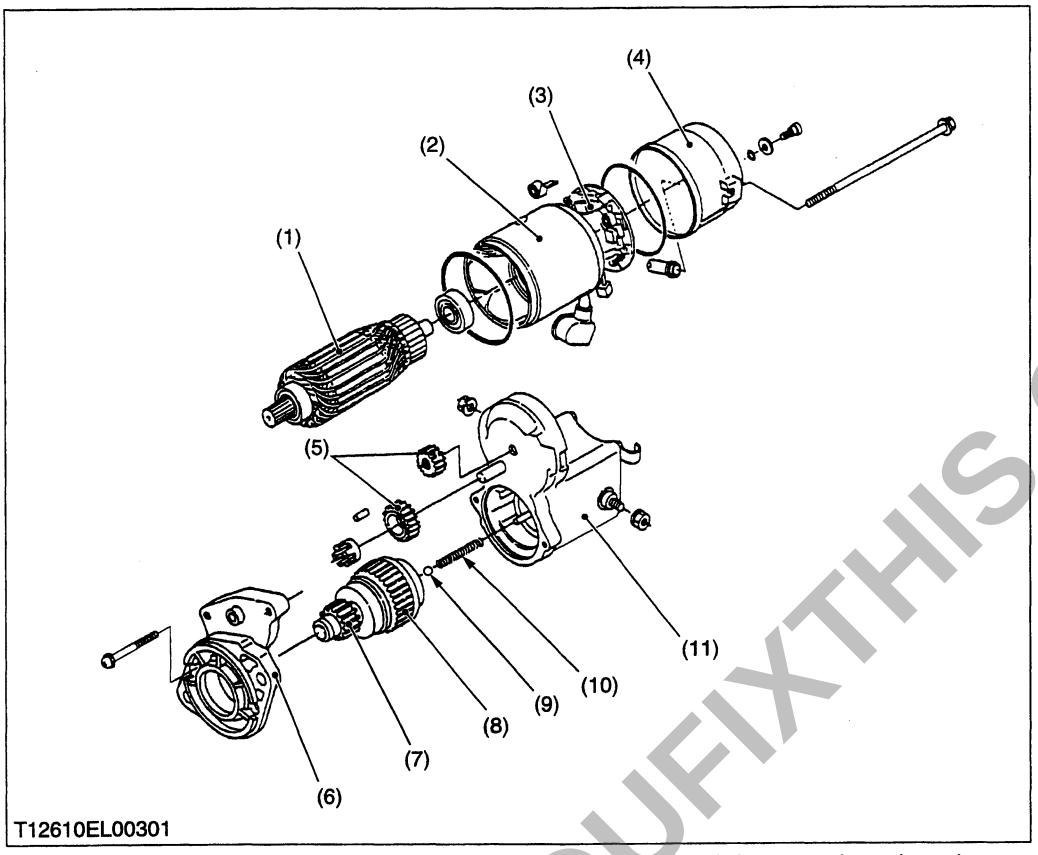
W1016095

When the control lever (6) is activated, the feedback lever (7) starts also moving to shift the spool (3). The servo piston (8), now under the pilot pressure at one end, is pushed in the direction of arrow as shown in figure.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

[1] STARTER



(1) Armature
(2) Yoke
(3) Brush Holder
(4) End Frame
(5) Gear
(6) Drive End Frame
(7) Pinion
(8) Roller Clutch
(9) Ball
(10) Spring
(11) Magnet Switch

W1013084

The starter motor is a reduction type. The speed of the pinion gear is reduced to approximately one third of motor one.

PREVIEW - YOUFIXTHIS.COM

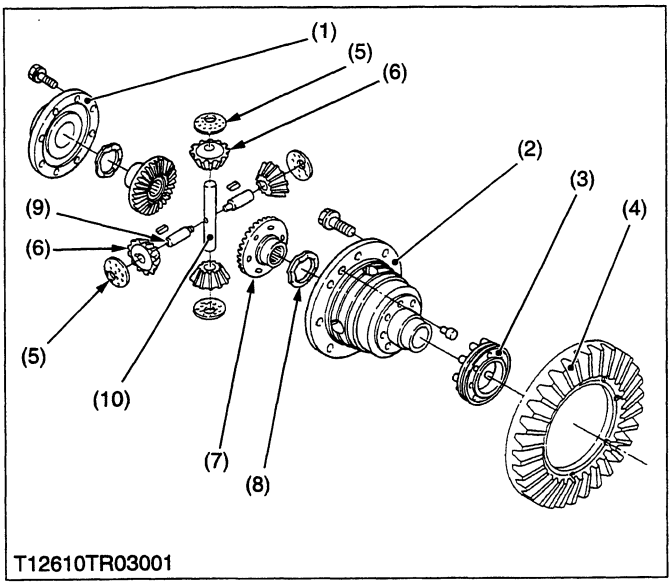
Download full manual at youfixthis.com

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

[7] DIFFERENTIAL GEAR

(1) Structure



T12610TR03001

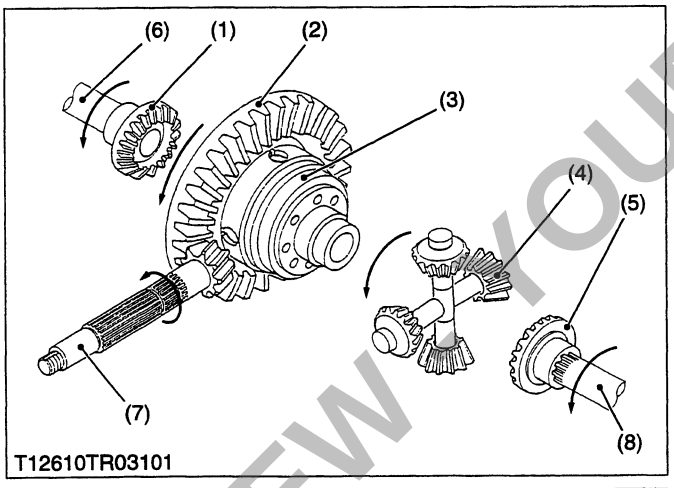
The differential gear assembly is a mechanism to provide smooth steering. It automatically provides different optimum torques to the right and left wheels according to road resistance and braking friction at the wheels.

The differential gear assembly is composed of the differential case, differential pinions, differential side gears, differential pinion shaft, ring gear, etc..

(1) Differential Case Cover
(2) Differential Case
(3) Differential Lock Shifter
(4) Ring Gear
(5) Differential Pinion Washer
(6) Differential Pinion
(7) Differential Side Gear
(8) Differential Side Gear Washer
(9) Differential Pinion Shaft 2
(10) Differential Pinion Shaft

W1017839

(2) Operation



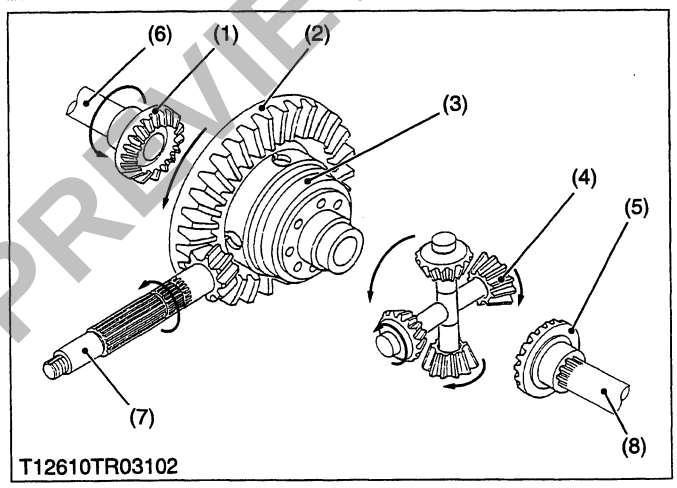
T12610TR03101

■ Travelling Straight Ahead

Rotation of the spiral bevel pinion (7) is transmitted to the ring gear (2) bolted to the differential case (3). When road resistance to the right and left wheels are equal, the differential pinions (4), and differential side gears (1), (5) are carried around by the ring gear (2), and differential case (3) rotate as a unit. Differential gear shaft (6), (8) receive the same rotation and both wheels travel at the same speed.

(1) Differential Side Gear
(2) Ring Gear
(3) Differential Case
(4) Differential Pinion
(5) Differential Side Gear
(6) Differential Gear Shaft
(7) Spiral Bevel Pinion
(8) Differential Gear Shaft

W1018005



T12610TR03102

■ Turning a Corner

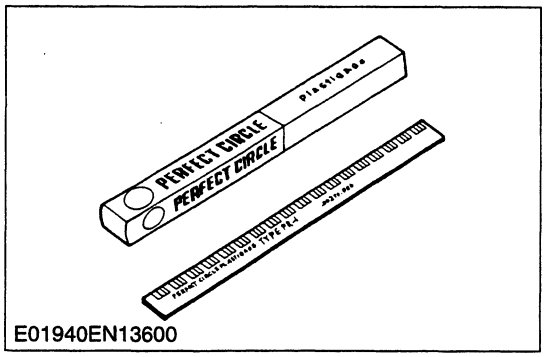
The power from the engine on spiral bevel pinion (7) rotates ring gear (2). When turning a corner, the outer wheel must travel farther than the inner one. While differential pinions (4) rotate with the differential case (3), they spin on differential pinion shaft to transmit more rotation to one differential side gear than to the other. As one differential gear shaft rotates faster, the other rotates slower by the same amount.

(1) Differential Side Gear
(2) Ring Gear
(3) Differential Case
(4) Differential Pinion
(5) Differential Side Gear
(6) Differential Gear Shaft
(7) Spiral Bevel Pinion
(8) Differential Gear Shaft

W1018066

PREVIEW YOUFIXTHIS.COM

Download full manual at youfixthis.com

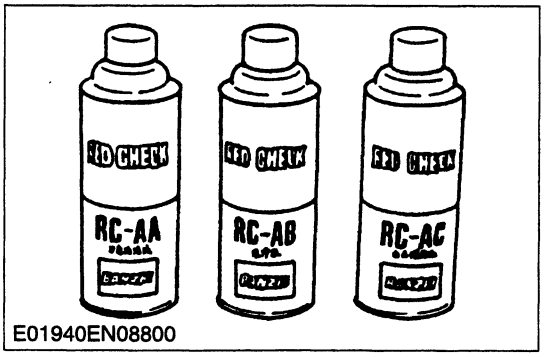


E01940EN13600

Plastigage

Code No: 07909-30241
Application: Use to check the oil clearance between crankshaft and bearing, etc.
Measuring range: Green .... 0.025 to 0.076 mm (0.001 to 0.003 in.)
Red ..... 0.051 to 0.152 mm (0.002 to 0.006 in.)
Blue ..... 0.102 to 0.229 mm (0.004 to 0.009 in.)

W1024719

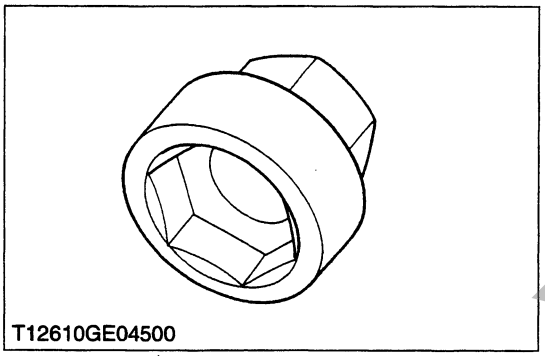


E01940EN08800

Red Check

Code No: 07909-31371
Application: Use to check cracks on cylinder head, cylinder block, etc.

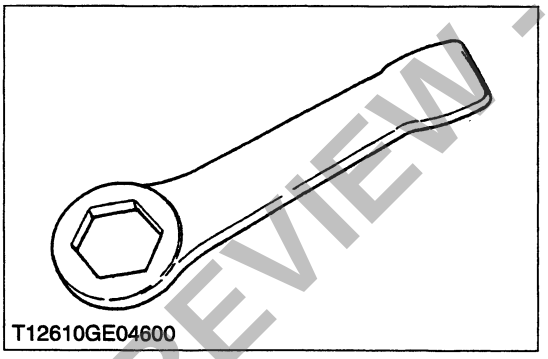
W1024909


T12610GE04500

Crankshaft Nut Socket 46

Code No: 07916-30821
Application: Use exclusively for removing or installing the crankshaft nut.

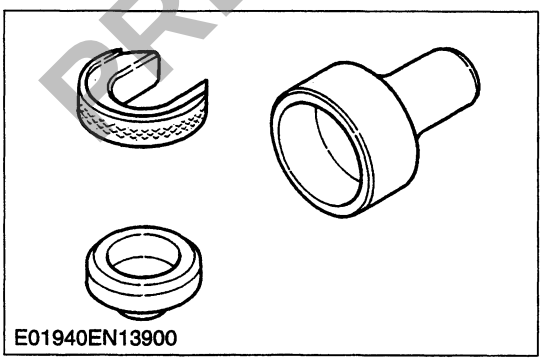
W1044361


T12610GE04600

Socket Wrench 46

Code No: 07916-30901
Application: Use exclusively for removing or installing the crankshaft nut.

W1044460


E01940EN13900

Auxiliary Socket For Fixing Crankshaft Sleeve

Code No: 07916-32091
Application: Use to fix the crankshaft sleeve of the diesel engine.

W1077114

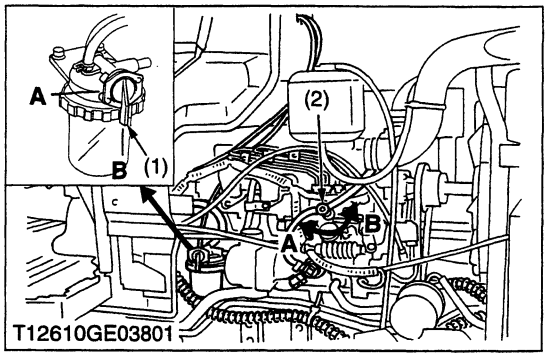
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

[14] OTHERS



Bleeding Fuel System

Air must removed :

1. When the fuel filter or lines are removed.
2. When tank is completely empty.
3. After the tractor has not been used for a long period of time.

Bleeding procedure is as follows.

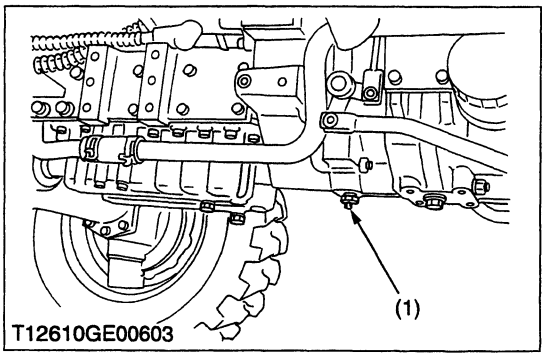
1. Fill the fuel tank with fuel, and open the fuel cock (1).
2. Open the air vent cock (2) on the fuel injection pump.
3. Start the engine and run for about 30 seconds, and then stop the engine.
4. Close the air vent cock.

■ **IMPORTANT**

- **Always close the air vent cock except for bleeding fuel lines. Otherwise, engine runs irregularly or stalls frequently.**

(1) Fuel Cock
(2) Air Vent Cock
A : Close
B : Open

W1039026



Draining Clutch Housing Water

■ **NOTE**

- **The tractor is equipped with split pin plug (1) under the clutch housing.**
- **After operating in rain, snow or tractor has been washed, water may get into the clutch housing.**

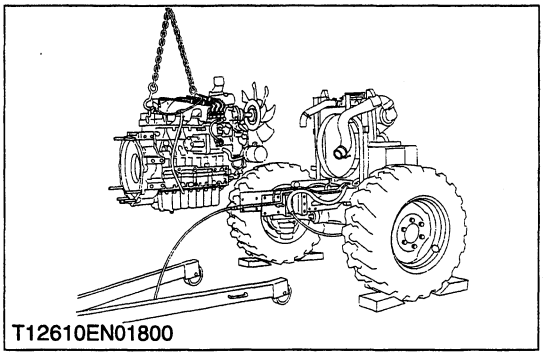
1. Check it by pushing in the split pin (1).
2. If water enters into the clutch housing, remove the plug (1) and drain the water, then reinstall the plug.

(1) Split Pin (Plug)

W1039199

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com


T12610EN01800

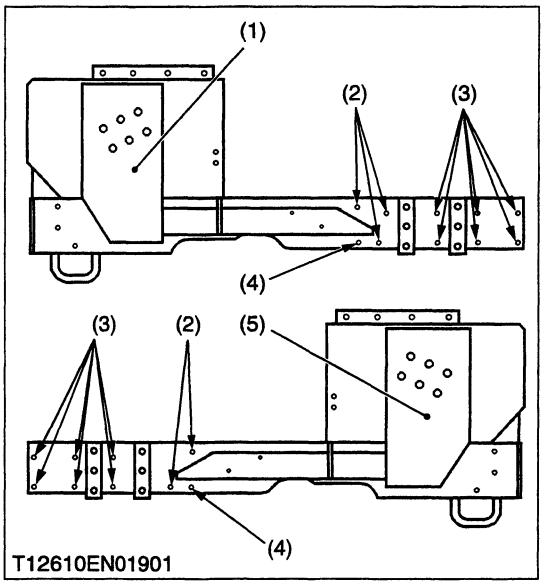
Separate the Engine from Engine Frame

1. Hoist the engine by engine hook and place the disassembling stand under front side of engine frame.
2. Remove the engine to engine frame mounting screws and nuts.
3. Remove the both side of reamer stud bolts (4).
4. Separate the engine from engine frame.

(When reassembling)

- Apply lock tight to the stud bolt.
- Apply small amount of oil to reamer position of stud bolt but never apply oil to threaded position of stud bolt.

Tightening torque	Engine to engine frame mounting screw and nut	102.9 to 117.6 N·m 10.5 to 12.0 kgf·m 76.0 to 86.8 ft-lbs
	Reamer stud bolt	39.2 to 49.0 N·m 4.0 to 5.0 kgf·m 28.9 to 36.2 ft-lbs



T12610EN01901

(1) Engine Frame (Left View)
(2) Bolt with Plain Washer
(3) Bolt
(4) Reamer Stud Bolt
(5) Engine Frame (Right View)

W1018067

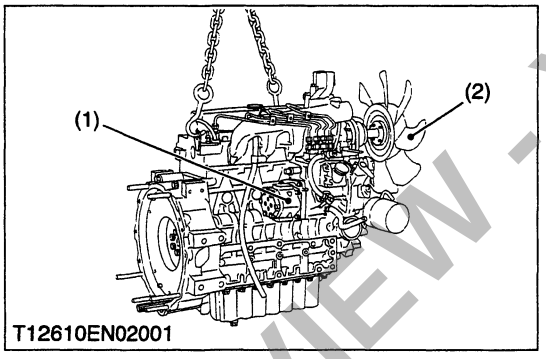
Outer Parts of Engine

1. Remove the hydraulic pump 3 (1) with pump holder.
2. Remove the fan (2) and fan pulley.
3. Remove the alternator (3) and fan belt (5).
4. Remove the starter motor (4).

(When reassembling)

- Be sure to adjust the fan belt tension. (Refer to G-22.)

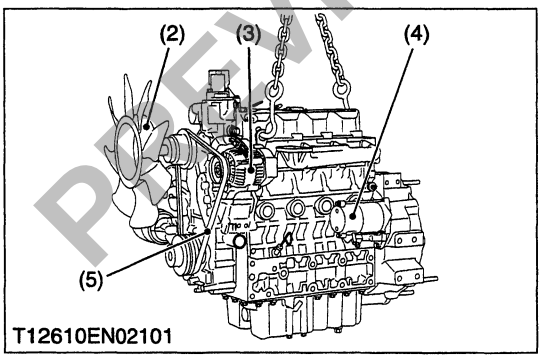
Tightening torque	Alternator mounting screw (M10)	39.2 to 44.1 N·m 4.0 to 4.5 kgf·m 28.9 to 32.5 ft-lbs
	Tension adjusting screw (M8)	17.6 to 20.6 N·m 1.8 to 2.1 kgf·m 13.0 to 15.2 ft-lbs



T12610EN02001

(1) Hydraulic Pump 3
(2) Fan
(3) Alternator
(4) Starter Motor
(5) Fan Belt

W1018360



T12610EN02101

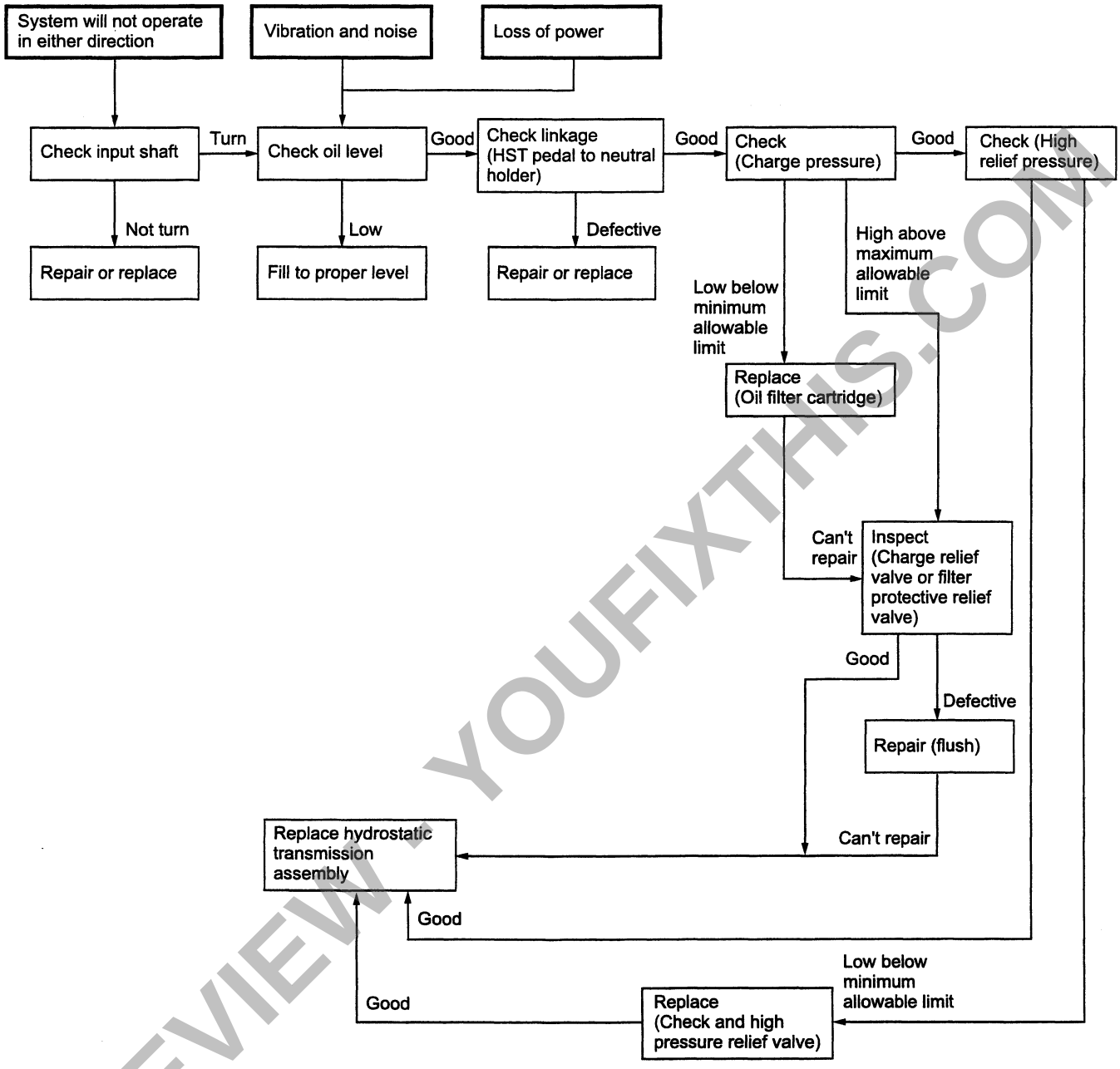
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

HYDROSTATIC TRANSMISSION



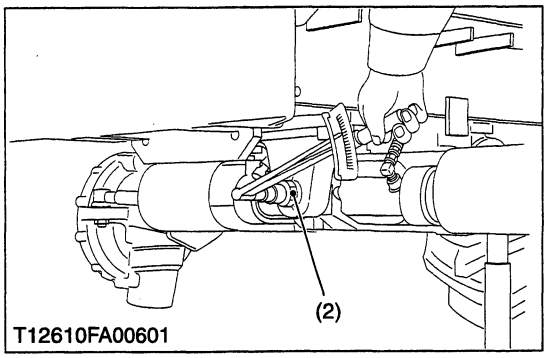
T12610TR13101

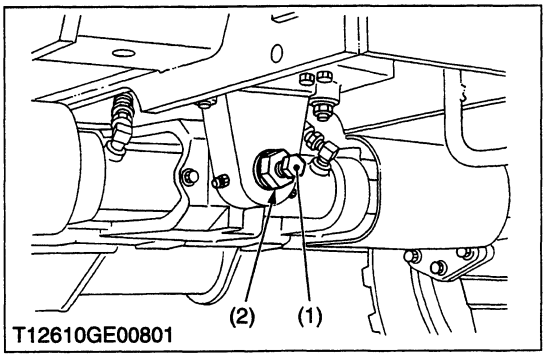
PREVIEW - YOUFIXTHIS.COM

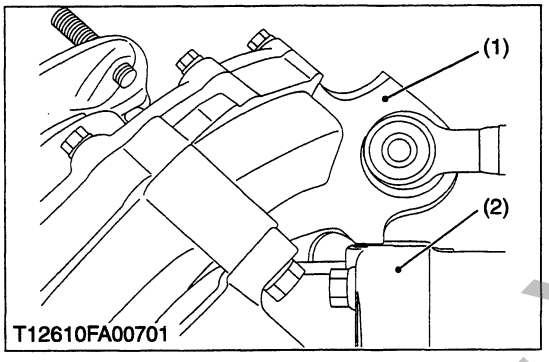
Download full manual at youfixthis.com

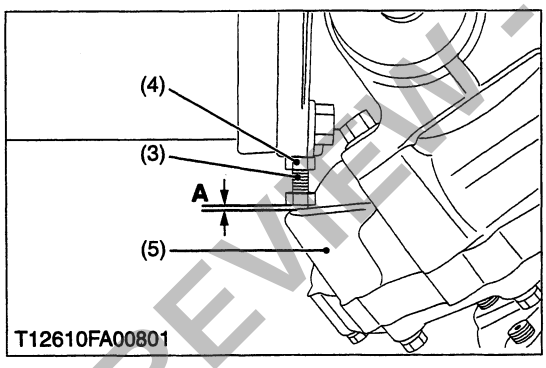
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com









Adjusting Front Axle Pivot

1. Jack up the tractor body, then loosen the lock nut (2).
2. Measure the adjusting screw tightening torque.
3. If tightening torque is not within the factory specifications, adjust the adjusting screw (1).
4. After adjustment, tighten the lock nut firmly

Tightening torque	Front axle adjusting screw	19.6 to 29.4 N·m 2.0 to 3.0 kgf·m 14.5 to 21.7 ft-lbs
	Lock nut	98.1 to 147.1 N·m 10.0 to 15.0 kgf·m 72.3 to 108.5 ft-lbs

(1) Adjusting Screw (2) Lock Nut

W1013042

Front Wheel Steering Angle

1. Inflate the tires to the specified pressure.
2. Steer the wheels to the extreme right until the front gear case (1) contacts with the bevel gear case (2) at right hand side of the front axle.
3. If the front gear case (1) can not be contacted with the bevel gear case (2), shorten the length of stopper (3).
4. Keeping the front gear case (1) contact with the bevel gear case (2), make a specified clearance **(A)** as shown in the lower table.
5. After adjustment, secure the stopper with the lock nut (4).
6. For adjusting the left steering angle, perform the same procedure as mentioned in right steering angle.

Clearance **(A)** between bevel gear case and stopper	Reference value	1.0 to 3.0 mm 0.04 to 0.12 in.

(1) Front Gear Case
(2) Bevel Gear Case
(3) Stopper
(4) Lock Nut
(5) Front Gear Case

A : Clearance

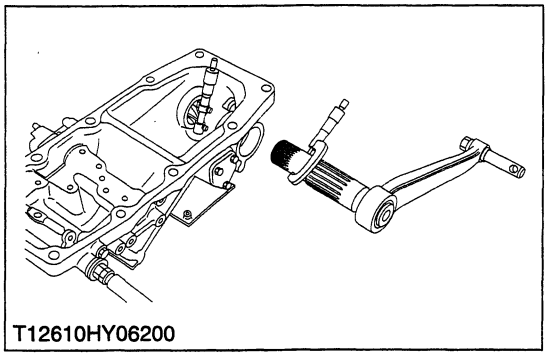
W1013309

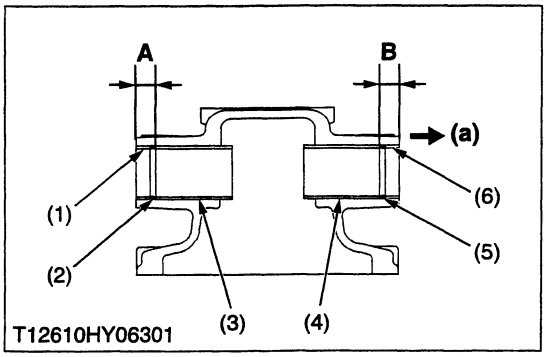
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com


T12610HY06200



T12610HY06301

Clearance between Hydraulic Arm Shaft and Bushing

1. Measure the hydraulic arm shaft O.D. with an outside micrometer.
2. Measure the bushing I.D. with a inside micrometer, and calculate the clearance.
3. If the clearance exceeds the allowable limit, replace the bushing.

Clearance between hydraulic arm shaft and bushing (Right side)	Factory spec.	0.145 to 0.245 mm 0.00571 to 0.00965 in.
	Allowable limit	0.50 mm 0.0197 in.

Hydraulic arm shaft O.D. (Right side)	Factory spec.	49.920 to 49.950 mm 1.96535 to 1.96653 in.
Bushing I.D. (After press-fitted) (Right side)	Factory spec.	50.095 to 50.165 mm 1.97224 to 1.97500 in.

Clearance between hydraulic arm shaft and bushing (Left side)	Factory spec.	0.125 to 0.220 mm 0.00492 to 0.00866 in.
	Allowable limit	0.50 mm 0.0197 in.

Hydraulic arm shaft O.D. (Left side)	Factory spec.	44.920 to 44.950 mm 1.76850 to 1.76968 in.
Bushing I.D. (After press-fitted) (Left side)	Factory spec.	45.075 to 45.140 mm 1.77460 to 1.77716 in.

(When reassembling)

- When press-fitting a new bushing with a press-fitting tool (see page G-45), observe the dimensions described in the figure.
- When press-fitting a new bushing, apply transmission fluid to the hydraulic cylinder liner boss and bushing.
- When press-fitting a new bushing, press-fit it so that each seam faces up.

Press-fit location of bushing	Reference value	A	21.5 to 22.5 mm 0.8465 to 0.8858 in.
		B	24.5 to 25.5 mm 0.9645 to 1.0039 in.

(1) Collar (Left)
(2) O-ring
(3) Bushing (Left)
(4) Bushing (Right)
(5) O-ring
(6) Collar (Right)

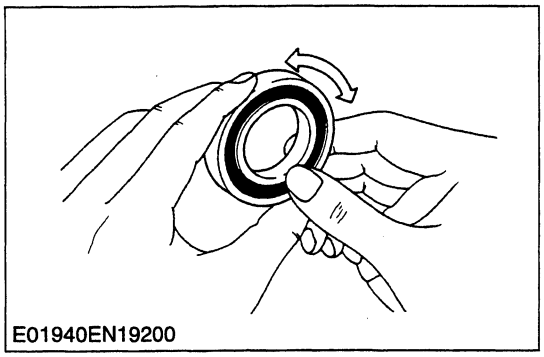
(a) Right Side
*** Flush the end of collar with the end of hydraulic cylinder body**

W1020894

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

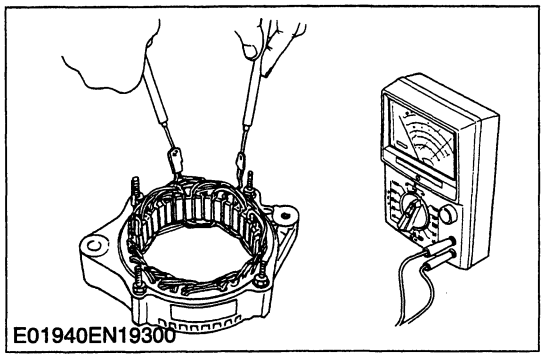
(3) Servicing


E01940EN19200

Bearing

1. Check the bearing for smooth rotation.
2. If it does not rotate smoothly, replace it.

W1019790

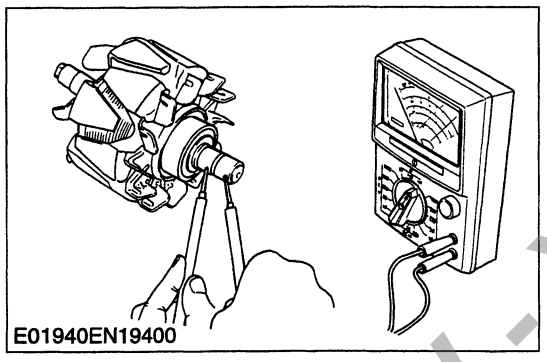

E01940EN19300

Stator

1. Measure the resistance across each lead of the stator coil with an ohmmeter.
2. If the measurement is not within factory specification, replace it.
3. Check the continuity across each stator coil lead and core with an ohmmeter.
4. If infinity is not indicated, replace it.

Resistance	Factory spec.	Less than 1.0 Ω

W1019964

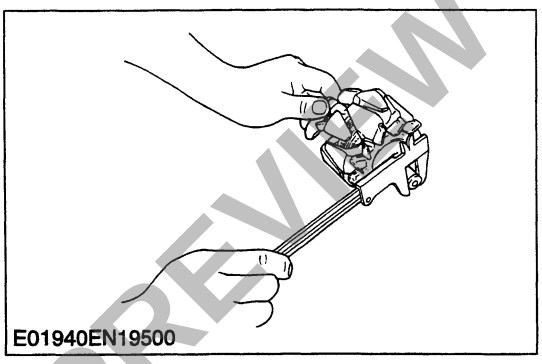

E01940EN19400

Rotor

1. Measure the resistance across the slip rings with an ohmmeter.
2. If the resistance is not the factory specification, replace it.
3. Check the continuity across the slip ring and core with an ohmmeter.
4. If infinity is not indicated, replace it.

Resistance	Factory spec.	2.9 Ω

W1020094

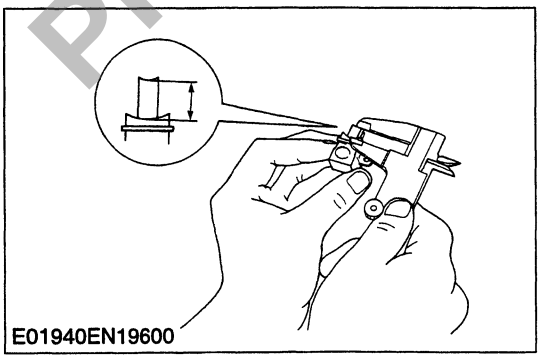

E01940EN19500

Slip Ring

1. Check the slip ring for score.
2. If scored, correct with an emery paper or on a lathe.
3. Measure the O.D. of slip ring with vernier calipers.
4. If the measurement is less than the allowable limit, replace it.

Slip ring O.D.	Factory spec.	14.4 mm 0.567 in.
	Allowable limit	12.8 mm 0.504 in.

W1020208


E01940EN19600

Brush Wear

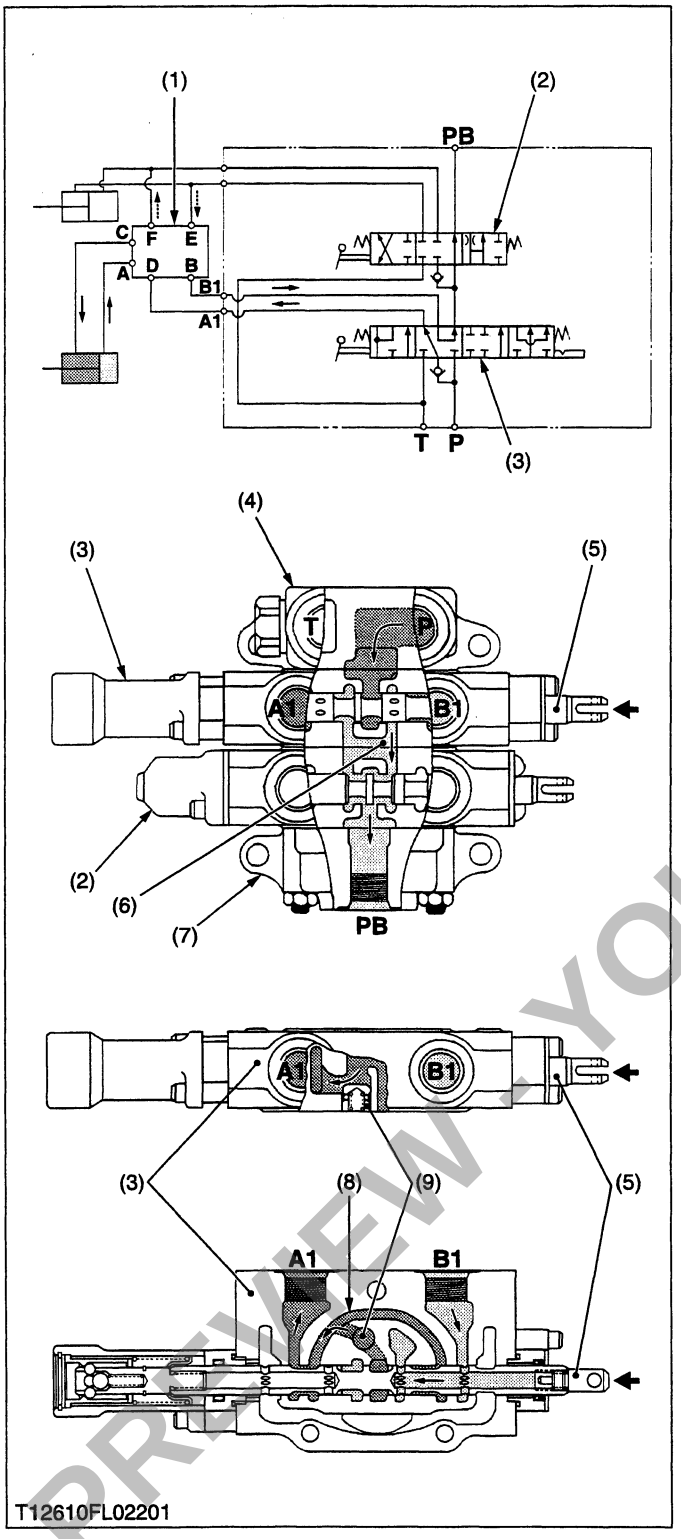
1. Measure the brush length with vernier calipers.
2. If the measurement is less than allowable limit, replace it.
3. Make sure that the brush moves smoothly.
4. If the brush is defective, replace it.

Brush length	Factory spec.	10.5 mm 0.413 in.
	Allowable limit	8.4 mm 0.331 in.

W1020329

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com



■ Down

1. When the hydraulic control lever is set to the **"DOWN"** position, the spool (5) moves to the left, which forms oil passages between passage 1 (8) and **A1** port, and between **B1** port and **PB** passage 1 (6).
2. The pressure-fed oil from the **P** port opens the load check valve (9) and flows through the notched section of the spool (5) and **A1** port.
3. Oil exiting from the **A1** port flows into **D** port of self-leveling valve (1) and flows **C** port to retract the boom cylinder.
4. Return oil from the boom cylinder flows into **A** port of self-leveling valve (1) and flows out from **B** port or **F** port to retract the bucket cylinder.
5. Oil from **B** port of self-leveling valve (1) flows from **B1** port through the passage in the spool (5) and **PB** passage 1 (6) to the bucket control valve (2).

(1) Self-Leveling Valve	**P : P Port**
(2) Bucket Control Valve	**T : T Port**
(3) Boom Control Valve	**A1 : A1 Port**
(4) Inlet section	**B1 : B1 Port (Boom Up)**
(5) Spool	**PB : PB Port**
(6) **PB** Passage 1	**A : A Port**
(7) Outlet Section	**B : B Port**
(8) Passage 1	**C : C Port**
(9) Load Check Valve	**D : D Port**
	E : E Port
	F : F Port

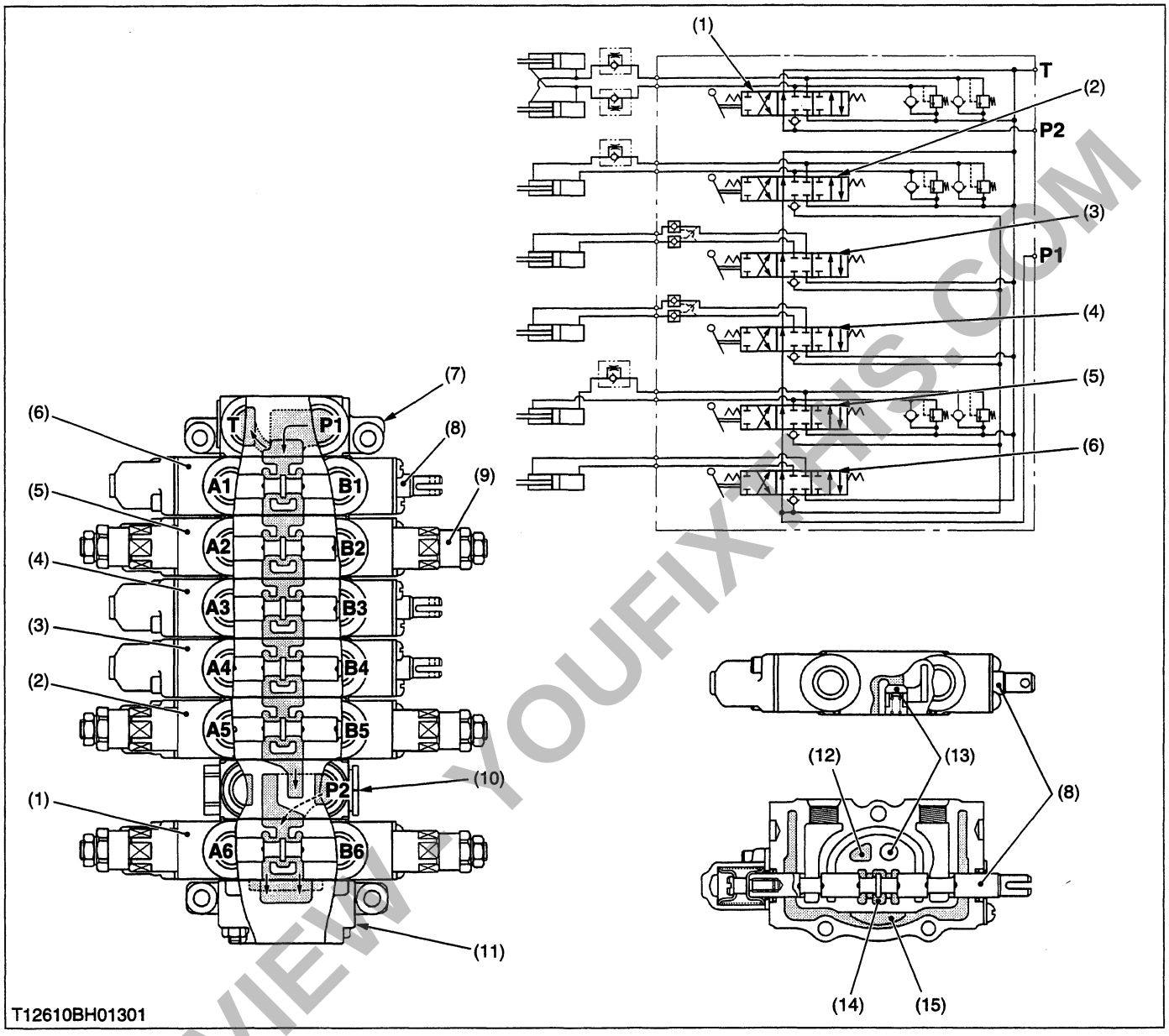
W1015865

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

(2) Operation

■ Neutral



(1) Swing Control Valve
(2) Boom Control Valve
(3) Stabilizer LH Control Valve
(4) Stabilizer RH Control Valve
(5) Dipperstick Control Valve
(6) Bucket Control Valve
(7) Inlet Section
(8) Spool
(9) Overload Relief Valve (Port Relief Valve)
(10) Mid Inlet Section (For Swing Circuit)
(11) Outlet Section
(12) Parallel Passage
(13) Load Check Valve
(14) Neutral Passage
(15) Low Pressure Passage

P1 : Pump Port
P2 : Pump Port
T : Tank Port
A : Cylinder Port **A**
B : Cylinder Port **B**
A1 : **A1** Port
A2 : **A2** Port
A3 : **A3** Port
A4 : **A4** Port
A5 : **A5** Port
A6 : **A6** Port
B1 : **B1** Port
B2 : **B2** Port
B3 : **B3** Port
B4 : **B4** Port
B5 : **B5** Port
B6 : **B6** Port

Pressure-fed oil from the hydraulic pumps are delivered into **P1** and **P2** port in the inlet sections (7), (10).

As the load check valves (13) are kept closed in the neutral position, oil flows along the notched section of the spools (8) to the **T** port through the neutral passage (14).

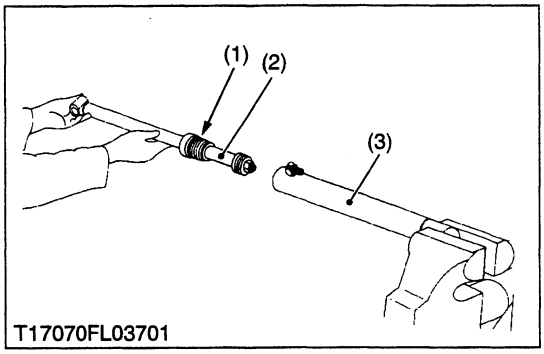
Then the oil is fed to the transmission case via the return hose and pipe from the **T** port.

PREVIEW - YOUFIXTHIS.COM

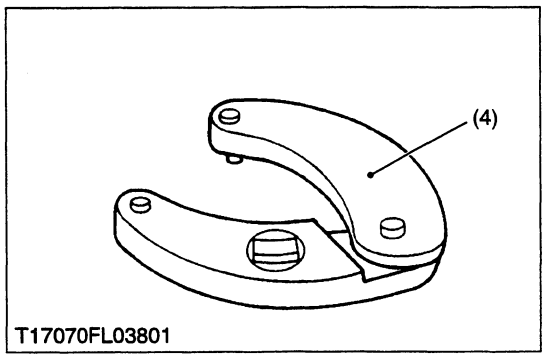
Download full manual at youfixthis.com

[2] BOOM, DIPPERSTICK, BUCKET, SWING AND STABILIZER CYLINDER

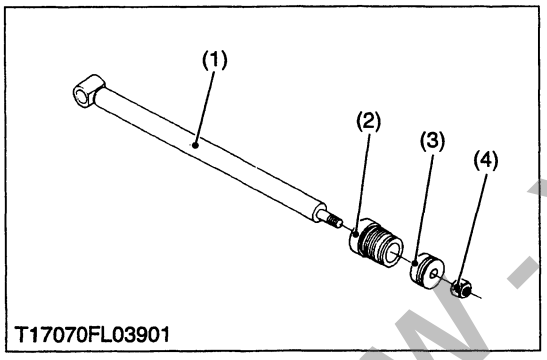
(1) Disassembling and Assembling



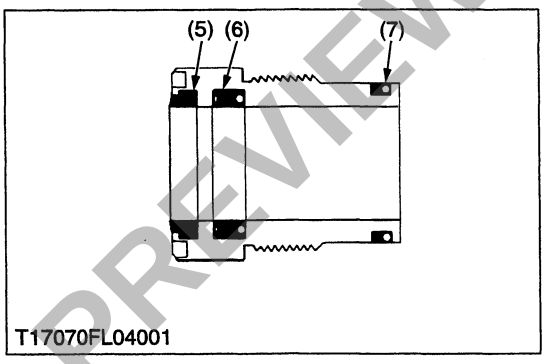
T17070FL03701



T17070FL03801



T17070FL03901



T17070FL04001

Cylinder Rod Assembly

1. Drain hydraulic oil from the cylinder, and secure the tube end of the cylinder in a vise.
2. Unscrew the cylinder head (1) with the adjustable gland nut wrench (4).
3. Pull out the piston rod assembly (2) from the cylinder tube (3).

(When reassembling)

- Visually inspect the cylinder tube for signs of scoring or damage.
- Insert the piston rod assembly to the cylinder tube, using care not to damage the piston seal on the piston.
- Install the cylinder head to the cylinder tube, using care not to damage the O-ring on the cylinder head.

(1) Cylinder Head
(2) Piston Rod Assembly
(3) Cylinder Tube
(4) Adjustable Gland Wrench

W1021758

Cylinder Head, Piston and Nut

1. Secure the rod end in a vise.
2. Unscrew the nut (4), and remove the piston (3) and cylinder head (2) from the piston rod (1).

(When reassembling)

- Visually inspect all parts for signs of scoring or damage.
- Insert the piston rod to the cylinder head, using care not to damage the wiper seal (5) and oil seal (6).

Tightening torque	Bucket cylinder, swing cylinder, stabilizer cylinder and dipperstick cylinder, piston mounting nut	278 to 292 N·m 28.4 to 29.7 kgf·m 205 to 215 ft-lbs
	Boom cylinder piston mounting nut	414 to 441 N·m 42.2 to 44.9 kgf·m 305 to 325 ft-lbs

(1) Piston Rod
(2) Cylinder Head
(3) Piston
(4) Nut
(5) Wiper Seal
(6) Oil Seal
(7) O-ring

W1021908

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW ONLY

You're viewing 25 of 579 pages

The full manual includes:

- All 579 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

Kubota L48, TL1150, BT1100, TL1150SG Workshop Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual