WSM

WORKSHOP MANUAL
TRACTOR

STW34,STW37,STW40

Kubota

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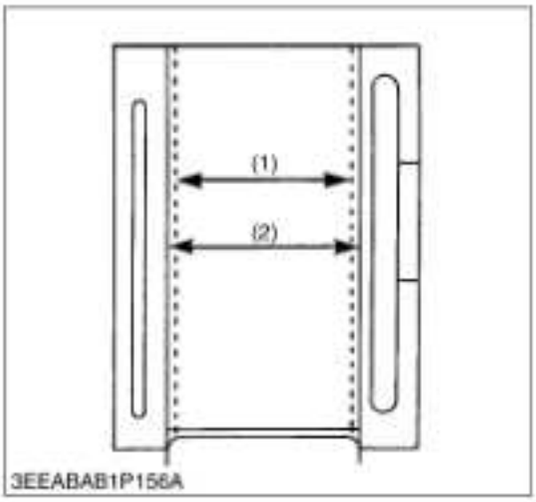
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Correcting Cylinder (Oversize +0.25 mm)

1. When the cylinder is worn beyond the allowable limit, bore and hone it to the specified dimension.

Oversize cylinder I.D.	Factory specification	87.250 to 87.272 mm 3.4351 to 3.4359 in.
Maximum wear	Allowable limit	87.400 mm 3.4409 in.
Finishing	Hom to 2.2 to 3.0 µm Rmax. (0.00087 to 0.00118 in. Rmax.)	

2. Replace the piston and piston rings with oversize ones. Oversize: 0.25 mm (0.0098 in.).

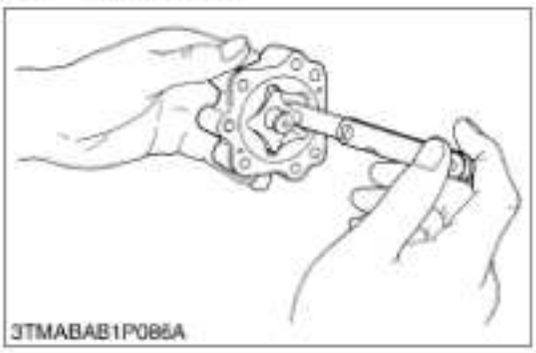
■ **NOTE**

- **When the oversize cylinder is worn beyond the allowable limit, replace the cylinder block with a new one.**

(1) Cylinder I.D. (Before Correction) (2) Oversize Cylinder I.D.

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(6) Oil Pump


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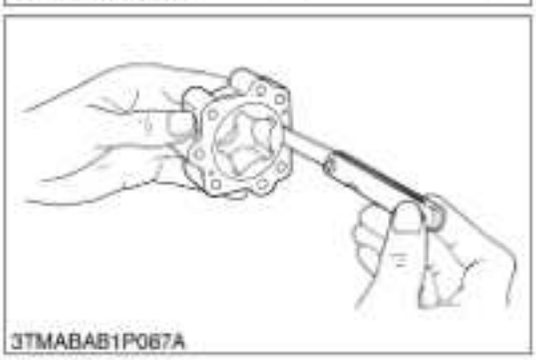
Rotor Lobe Clearance

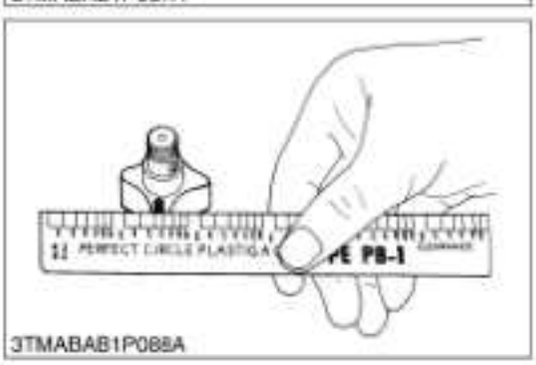
1. Measure the clearance between lobes of the inner rotor and the outer rotor with a feeler gauge.
2. Measure the clearance between the outer rotor and the pump body with a feeler gauge.
3. If the clearance exceeds the factory specifications, replace the oil pump rotor assembly.

Clearance between inner rotor and outer rotor	Factory specification	0.03 to 0.14 mm 0.0012 to 0.0055 in.
	Allowable limit	0.2 mm 0.008 in.

Clearance between outer rotor and pump body	Factory specification	0.11 to 0.19 mm 0.0043 to 0.0075 in.
	Allowable limit	0.25 mm 0.0098 in.

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Clearance between Rotor and Cover

1. Put a strip of plastigauge (Code No. 07909-30241) onto the rotor face with grease.
2. Install the cover and tighten the screws.
3. Remove the cover carefully, and measure the width of the press gauge with a sheet of gauge.
4. If the clearance exceeds the factory specifications, replace the oil pump rotor assembly.

End clearance between inner rotor and cover	Factory specification	0.105 to 0.150 mm 0.00414 to 0.00590 in.
	Allowable limit	0.2 mm 0.0079 in.

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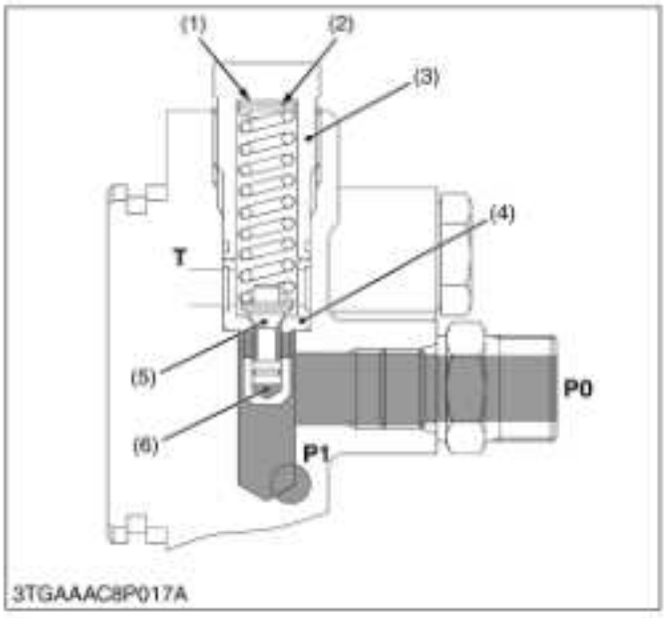
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Symptom	Probable Cause and Checking Procedure	Solution	Reference Page
Excessive Transmission Noise	1. Transmission fluid is insufficient.	Fill transmission fluid.	3-S16, 3-S30
	2. Gear is worn or backlash is improper.	Replace gear and adjust backlash to the factory specification.	–
	3. Bearings are worn or damaged.	Replace bearings.	–
	4. Shift fork is worn.	Replace shift fork.	–
	5. Backlash between spiral bevel pinion and spiral bevel gear is improper.	Adjust backlash between spiral bevel pinion and spiral bevel gear.	3-S73
	6. Backlash between differential pinion and differential side gear is improper.	Adjust backlash between differential pinion and differential side gear.	3-S71
	7. Bi-speed turn clutch is damaged.	Replace or repair bi-speed turn clutch.	3-S51
	8. PTO clutch is damaged.	Replace or repair PTO clutch.	3-S57
Gear Slip Out of Mesh	1. Shift linkages are rusted.	Repair shift linkages.	–
	2. Shifter or shift fork is worn or damaged.	Replace shifter or shift fork.	–
	3. Gears are worn or damaged.	Replace gears.	–
Differential Lock Can Not Be Engaged	1. Differential lock shift fork is damaged.	Replace differential lock shift fork.	3-S64
	2. Differential lock shift fork mounting spring pin is damaged.	Replace differential lock shift fork mounting spring pin.	3-S64
	3. Differential lock shifter pin is bent or damaged.	Replace differential lock shifter pin.	3-S64
	4. Differential lock fork shaft is bent or damaged.	Replace differential lock fork shaft.	3-S64
Differential Lock Pedal Does Not Return	1. Differential lock pedal return spring is weaken or damaged.	Replace differential lock pedal return spring.	–
	2. Differential lock shifter pin is bent or damaged.	Replace differential lock shifter pin.	3-S64
	3. Differential lock fork shaft is bent.	Replace differential lock fork shaft.	3-S64

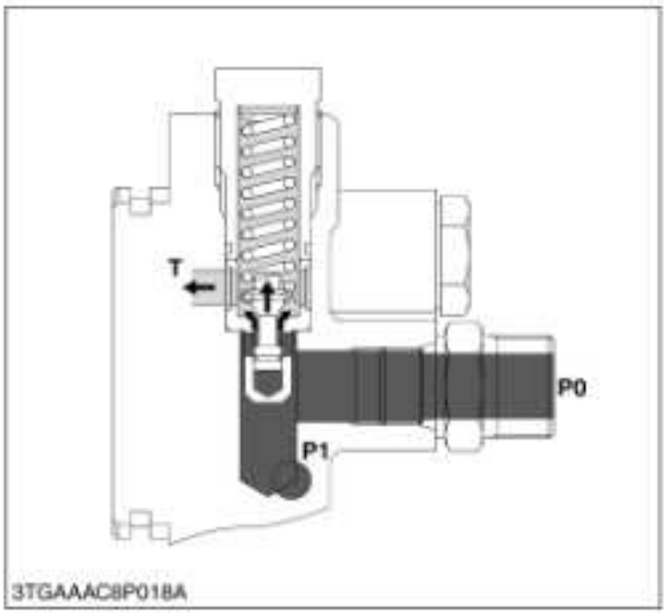
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[4] RELIEF VALVE



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The 3-point hydraulic circuit has a relief valve to restrict the maximum pressure in its circuit.

This is a guide piston relief valve with damper, a direct acting relief valve suitable for relatively high pressure and capacity, and constructed so as to prevent chattering and other unstableness associated with direct acting relief valves. As shown in the diagram, poppet (5) has a guide, and there is a valve chamber called a damping chamber (6) in the base of this guide piston. The valve inlet is connected to this chamber through the clearance between the guide surface and the seat so that the chamber provides a damping effect, controlling valve vibration.

When the pressure in the circuit rises, the pressure in the damping chamber also rises, and when it exceeds the relief pressure setting the spring is compressed, making a clearance between the poppet and the seat. The hydraulic oil can escape to the transmission case through this clearance, controlling the pressure rise.

(Reference)

- Relief valve setting pressure:
  16.7 to 17.2 MPa (170 to 175 kgf/cm^2, 2417.4 to 2488.5 psi)
- Engine speed:
  Maximum
- Oil temperature:
  40 to 60 °C (104 to 140 °F)

(1) Washer
(2) Shim
(3) Plug
(4) Seat
(5) Poppet
(6) Damping Chamber

T: Tank Port
P0: P0 Port (Pump Port)
P1: P1 Port (To Auxiliary Control Valve)

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Fender (Left Side)

1. Remove the fender covers (6) and the sponges (8), (9).
2. Remove the differential lock pedal (4) with the spring (5).
3. Remove the screws (3).
4. Remove the fender mounting screw (1).
5. Disconnect the clamp (2).

(When reassembling)

- Assemble the sponge (center) (8) between the cruise control lever (11) and range gear shift lever (10).

Tightening torque	Fender mounting screw (1)	197 to 225 N·m 20.0 to 23.0 kgf·m 145 to 166 psi

(1) Fender Mounting Screw
(2) Clamp
(3) Screw
(4) Differential Lock Pedal
(5) Spring
(6) Fender Cover
(7) Sponge (Inner)
(8) Sponge (Center)
(9) Sponge (Outer)
(10) Range Gear Shift Lever
(11) Cruise Control Lever

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Lever Guide and Bi-speed Controller Connector

1. Remove the lever guide mounting screws (1).
2. Open the lever guide (3).
3. Disconnect the bi-speed controller connectors (2) and then remove the lever guide (3).

(1) Screw
(2) Bi-speed Controller Connector
(3) Lever Guide

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Fender (Left Side)

1. Remove the fender covers (6) and the sponges (8), (9).
2. Remove the differential lock pedal (4) with the spring (5).
3. Remove the screws (3).
4. Remove the fender mounting screw (1).
5. Disconnect the clamp (2).

(When reassembling)

- Assemble the sponge (center) (8) between the cruise control lever (11) and range gear shift lever (10).

Tightening torque	Fender mounting screw (1)	197 to 225 N·m 20.0 to 23.0 kgf·m 145 to 166 psi



(1) Fender Mounting Screw
(2) Clamp
(3) Screw
(4) Differential Lock Pedal
(5) Spring
(6) Fender Cover
(7) Sponge (Inner)
(8) Sponge (Center)
(9) Sponge (Outer)
(10) Range Gear Shift Lever
(11) Cruise Control Lever

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Lever Guide and Bi-speed Controller Connector

1. Remove the lever guide mounting screws (1).
2. Open the lever guide (3).
3. Disconnect the bi-speed controller connectors (2) and then remove the lever guide (3).



(1) Screw
(2) Bi-speed Controller Connector
(3) Lever Guide

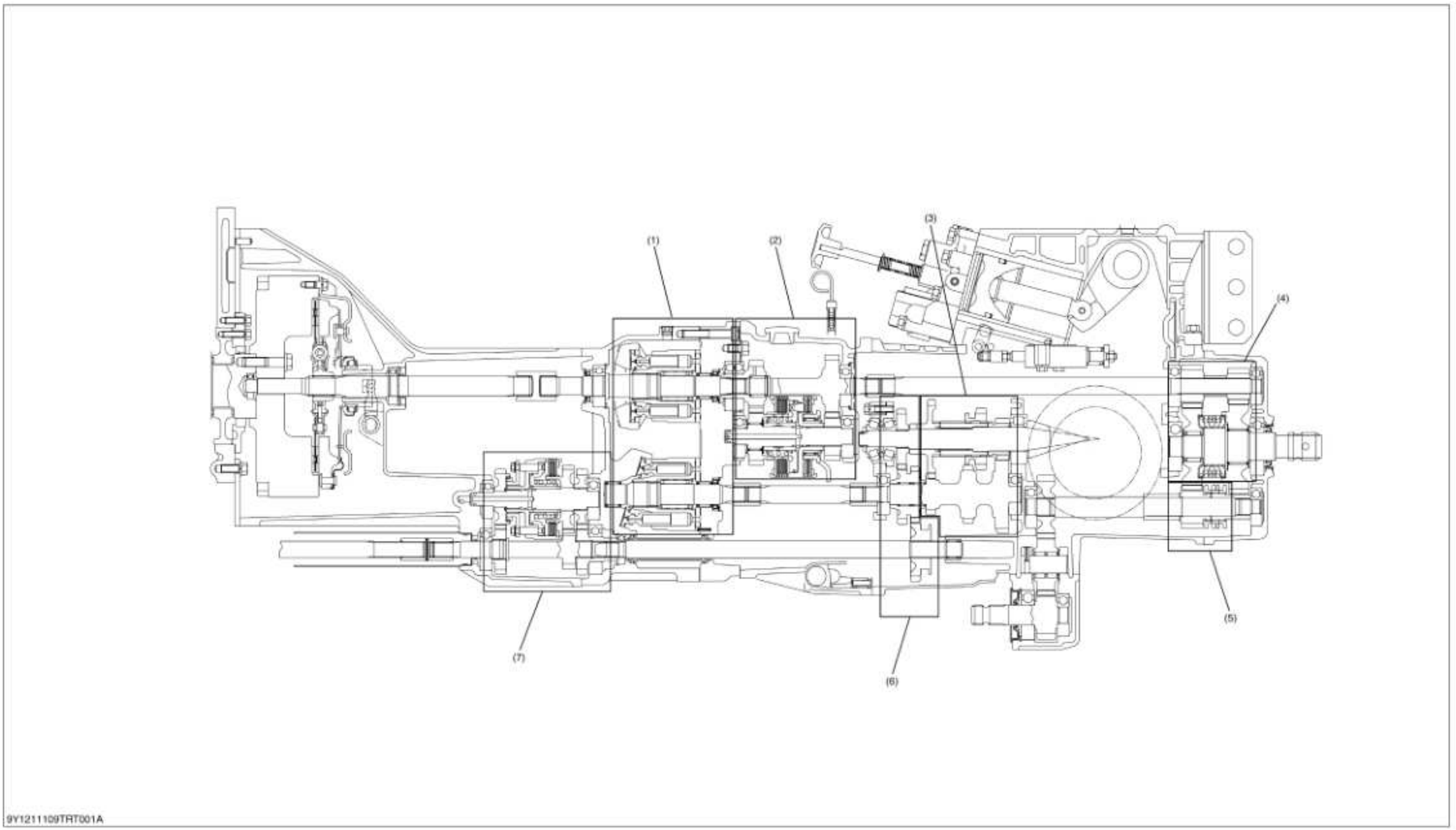
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1. STRUCTURE



(1) HST (Hydrostatic Transmission) Section
(2) PTO Clutch Section
(3) Range Gear Shift Section
(4) Rear PTO Gear Shift Section
(5) Mid PTO Gear Shift Section
(6) Front Wheel Drive Section
(7) Bi-speed Turn Clutch Section

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