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TO THE READER

In this section, the altered points of F2100, F2100E and F2400 from F2000 are explained. It is divided into two parts, MECHANISM and SERVICING.

As for the items which are not explained in this section, refer to the first section of this book (Workshop Manual for F2000).

All information, illustrations and specifications contained in this manual are based on the latest production information available at the time of publication.

KUBOTA reserves the right to make changes in information at any time without notice.

Mar '90

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F FEATURES



0343P001

■ **Vertical, Water-cooled, 3-Cylinder Diesel Engine**
The quiet Kubota water-cooled 3-cylinder diesel engine produces high torque rise, maximum work efficiency, and reduced fuel costs.

■ **Hydrostatic Transmission**
The hydrostatic transmission [HST], with high-low range selection, permits matching the optimum speed to the task at hand.

■ **2 Pedal System Speed Control with Cruise Control**
With the hydrostatic transmission, gear shifting is accomplished by an independent forward and rear 2 pedal system with cruise control.

■ **Hydrostatic Power Steering**
Hydrostatic power steering reduces work fatigue. And the rear wheel steering, by permitting a tighter turning radius, makes cutting around trees much easier.

■ **4WD**
4WD, with its greater tractive power, makes work on slopes or soft ground possible.

■ **Front Wheel Differential Lock**
The front wheel differential lock is superb for assisting the negotiation of slopes and soft or slippery ground.

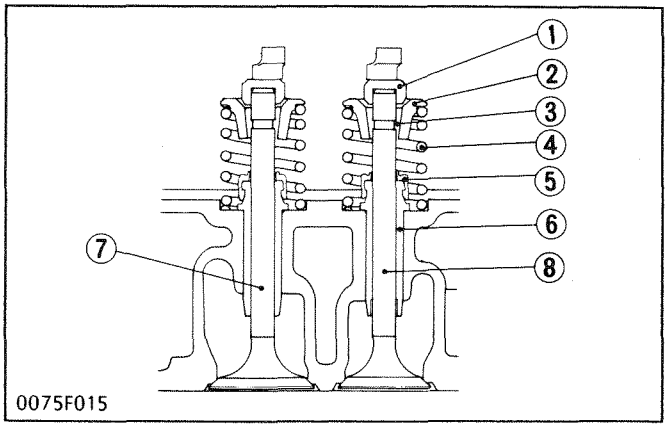
■ **Independent Left and Right Brakes**
Independent left and right brakes enhance trimming performance

■ **Front Off-set Mower**
The front off-set mower ensures easier and closer trimming.

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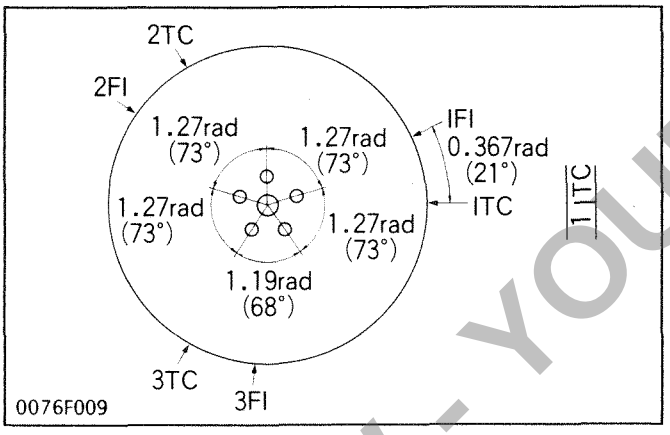
(8) Inlet and Exhaust Valves



(1) Valve Cap
(2) Valve Spring Retainer
(3) Valve Spring Collets
(4) Valve Spring
(5) Valve Stem Seal
(6) Valve Guide
(7) Inlet Valve
(8) Exhaust Valve

The inlet and exhaust valves (7), (8) and their guides (6) are different from each other. Other parts, such as valve springs (4), valve spring retainers (2), valve spring collets (3), valve stem seals (5), and valve caps (1) are the same for both the inlet and exhaust valves. All contact or sliding parts are quenched and tempered to resist wear.

(9) Flywheel



The flywheel is connected with the crankshaft. The flywheel functions by storing the explosive force from each cylinder as an inertia force and using this force to maintain smooth rotation of the flywheel.

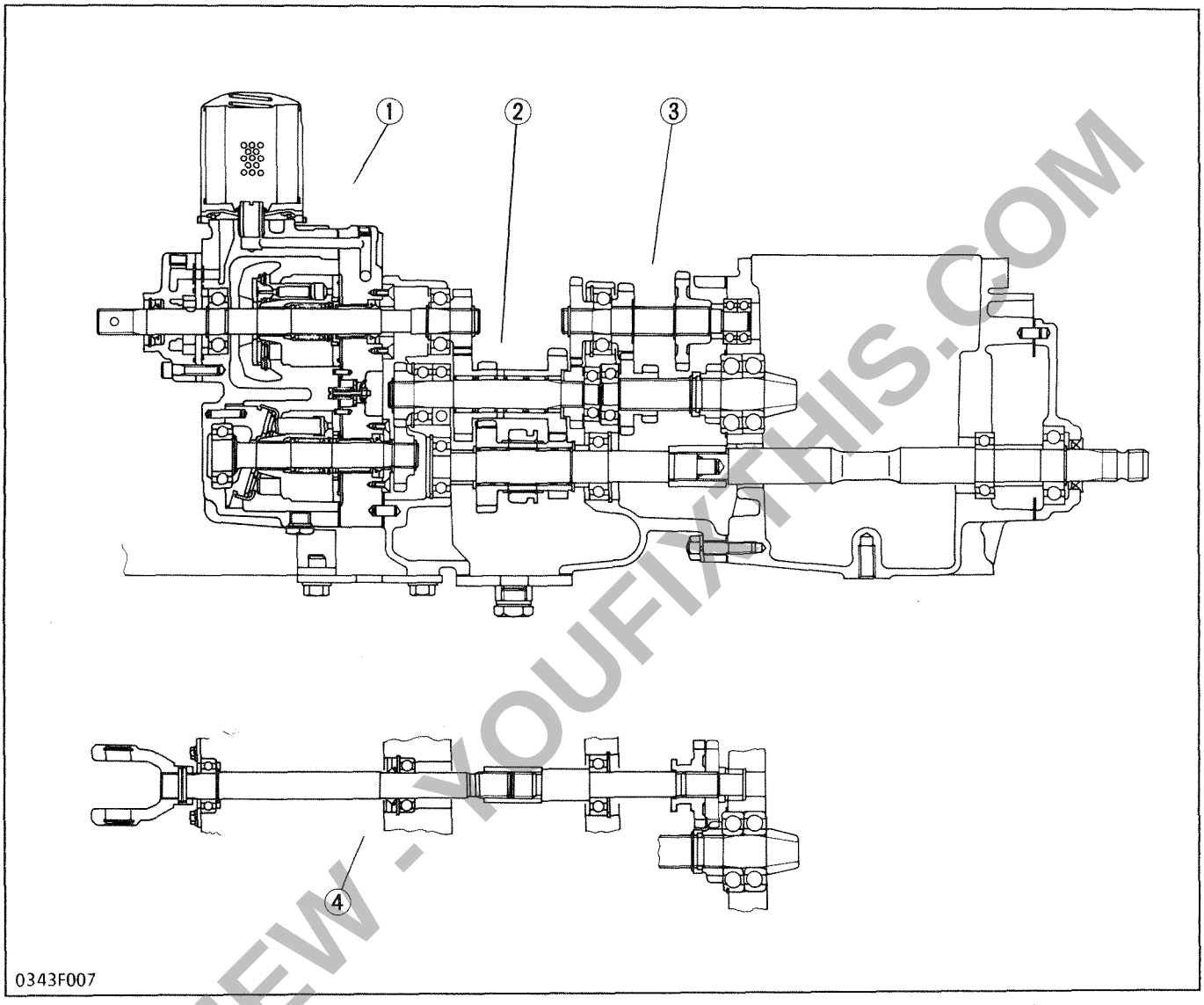
On the circumference of the flywheel are stamped the fuel injection timing and top dead center marks. The flywheel and crankshaft can be fixed to each other at a certain point according to the arrangement of flywheel mounting bolt hole.

1/TC··· Mark for top dead center of 1st piston
1/FC··· Mark for fuel injection of 1st piston

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3 TRANSMISSION



(1) Hydrostatic Transmission (2) PTO Shift Section (3) High-Low Gear Shift Section (4) Rear Wheel Drive Section

The transmission consists of HST (Hydrostatic Transmission) and a series of gears shown previously. It offers the most suitable speeds for traveling and operation by combination of them.

And power is transmitted to the front or rear axles and the PTO shafts, which are classified respectively as the traveling system and PTO system.

The traveling system consists of the HST (1) high-low gear shift section (3) and rear wheel drive section (4).

The traveling speeds are selected by the operation of the speed control pedal and the high-low gear shift lever.

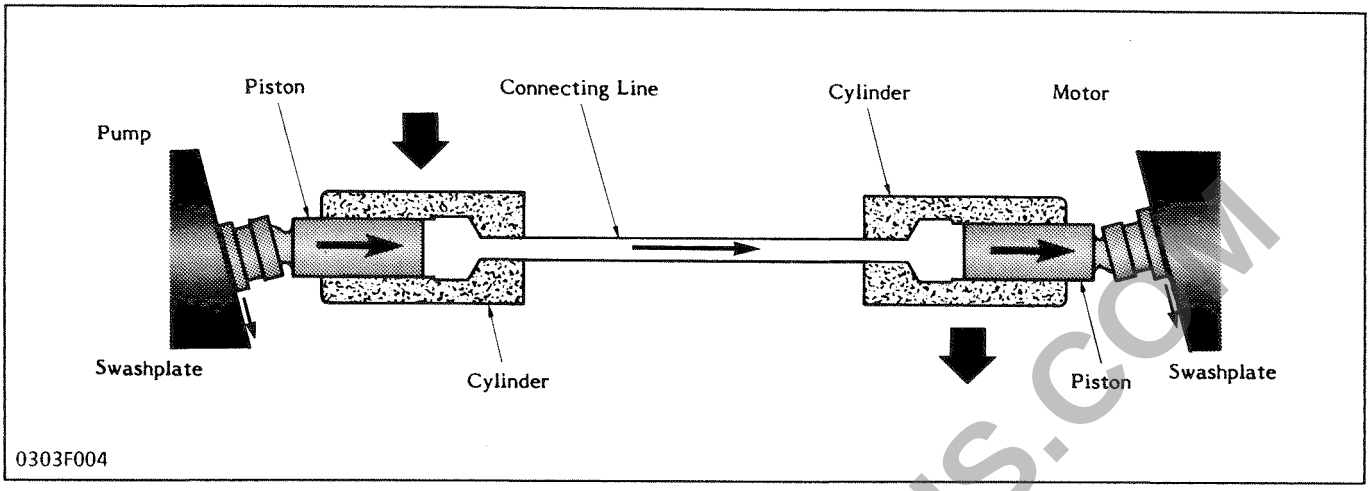
■ Traveling Speeds

Forward	Low	7.4 km/h (4.6 mph)
	High	15.2 km/h (9.5 mph)
Reverse	Low	4.4 km/h (2.8 mph)
	High	9 km/h (5.6 mph)

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(2) Pump and Motor

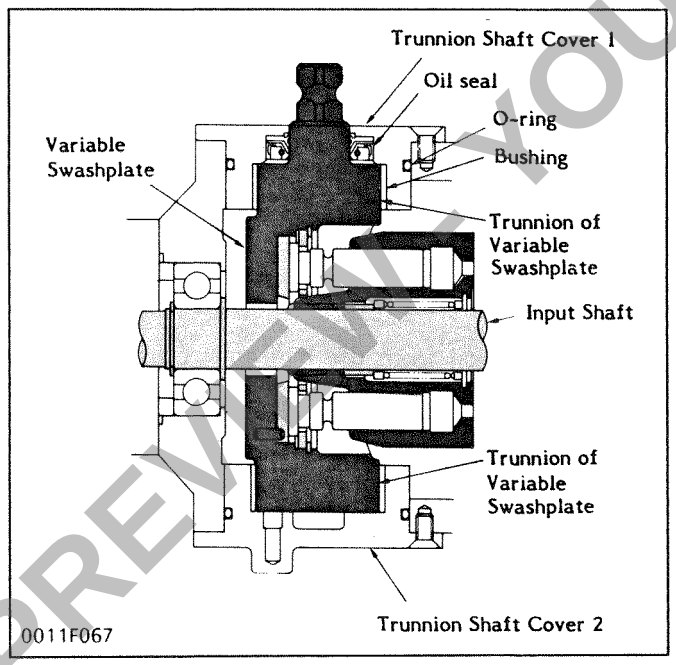


Pump and motor cylinder, each containing pistons, are connected by lines. Cylinders and lines are filled with oil. Pistons ride against swash plates located in pump and motor.

In the pump, as the cylinder rotates, pistons move across the sloping face of swash plate and slide in or out of their cylinder bores.

The oil, forced out by the pump pistons, causes the motor pistons to slide out of their cylinder bores. In the motor, sliding out of the cylinder and moving across the sloping face of swash plate, the pistons rotate the cylinder.

(3) Variable Swash Plate



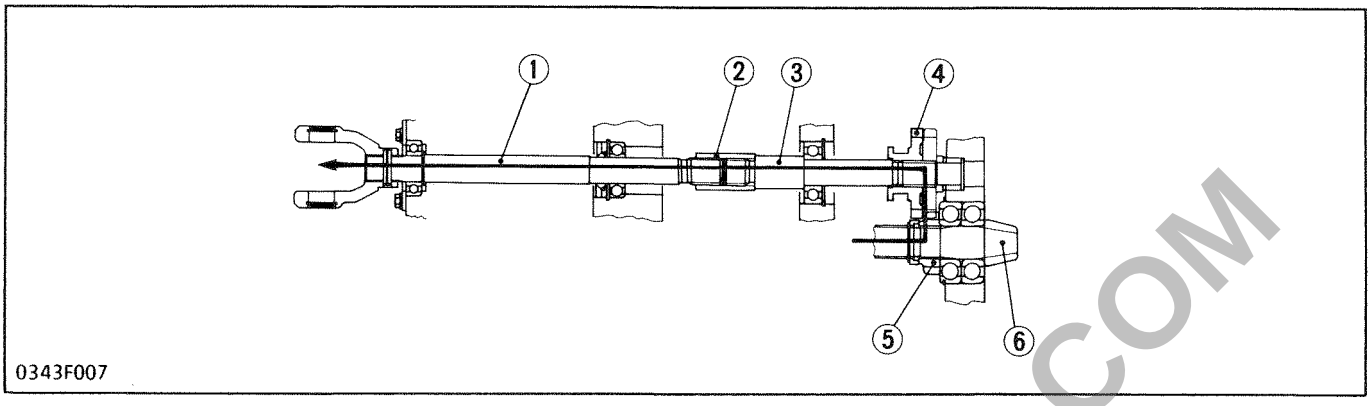
This pump is variable displacement one. The angle of its swash plate can be varied so that the volume and pressure of oil pumped by the piston can be changed or the direction of oil flow can be reversed.

The swash plate is moved around the trunnion shaft with the neutral holder, by stepping on the speed control pedal linked to the neutral holder.

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[3] REAR WHEEL DRIVE SECTION

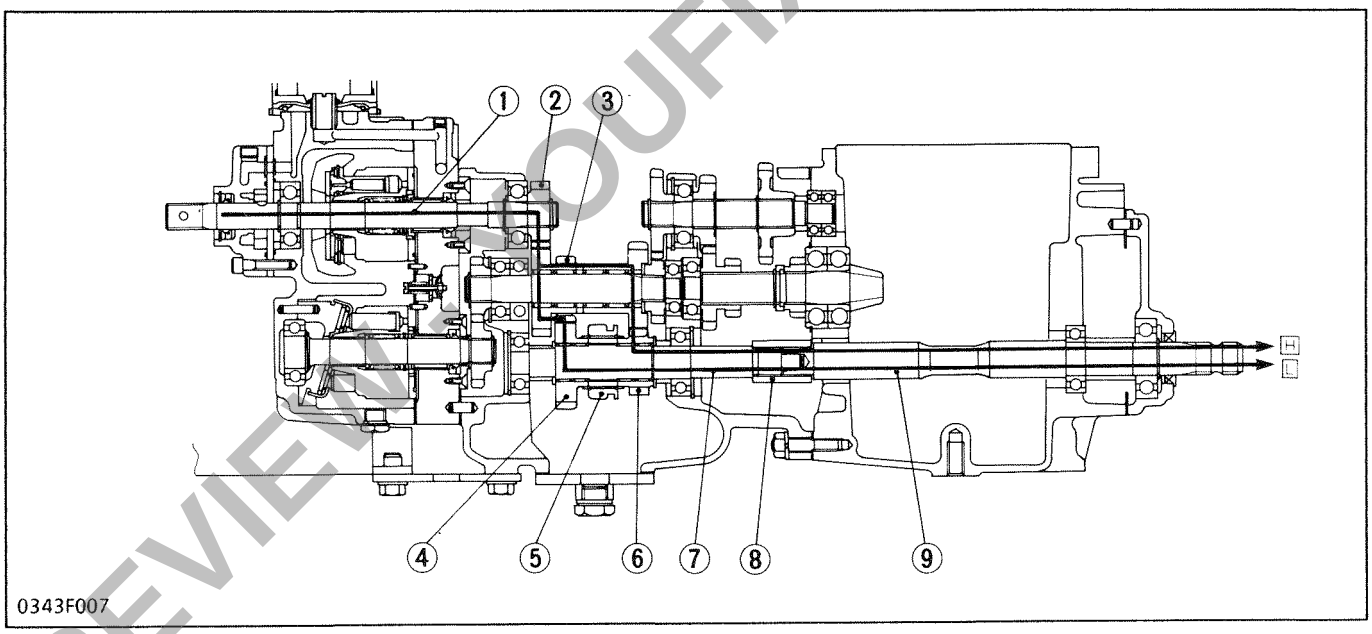


(1) Rear Drive Shaft
(2) Rear Drive Joint
(3) Rear Drive Shaft
(4) 24T Gear
(5) 16T Gear
(6) Spiral Bevel Pinion Shaft

2 wheel drive (front wheel drive) or 4 wheel drive is selected by changing the position of the 24T gear (4) splined to the rear drive shaft (3).

When in 4 wheel drive, the 24T gear (4) meshes with the 16T gear (6) and the power is transmitted from the spiral bevel pinion shaft (6) to the rear drive shaft (1).

[4] PTO SHIFT SECTION



(1) Hydrostatic 1st Shaft
(2) 17T Gear
(3) 26T–14T–21T Gear
(4) 21T Gear
(5) Shifter
(6) 14T Gear
(7) 3rd Shaft
(8) Spline Boss
(9) 5th Shaft

High speed, low speed or neutral position is selected by shifting the shifter (5) splined to the 3rd shaft (7).

■ Low Position

Hydrostatic 1st Shaft (1) → 17T Gear (2) → 26T Gear (3) → 14T Gear (3) → 21T Gear (4) → Shifter (5) → 3rd Shaft (7).

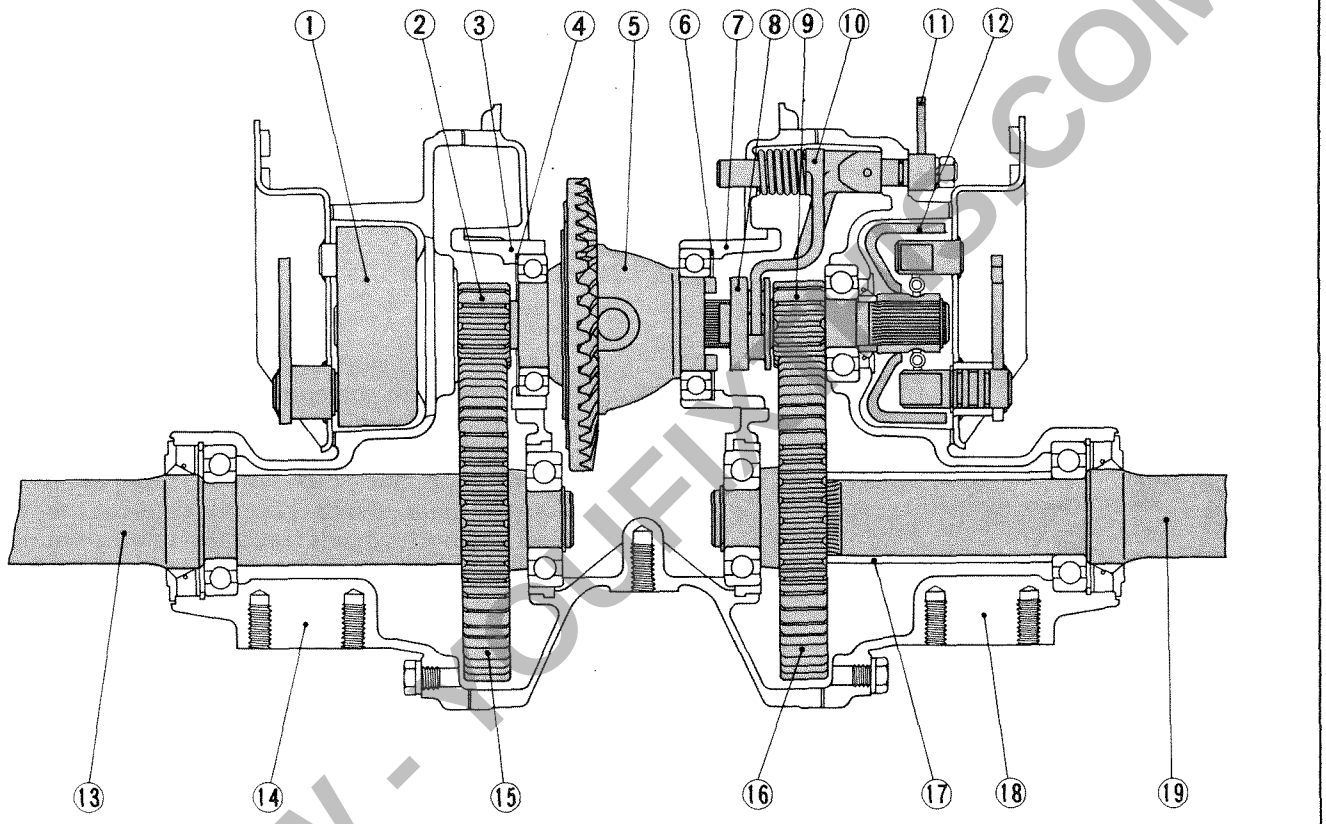
■ High Position

Hydrostatic 1st Shaft (1) → 17T Gear (2) → 26T Gear (3) → 21T Gear (3) → 14T Gear (6) → Shifter (5) → 3rd Shaft (7).

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4 FRONT AXLE



0343F009

(1) Brake Assembly (Right)
(2) Differential Gear Shaft (Right)
(3) Bearing Holder (Right)
(4) Differential Side Shim
(5) Differential
(6) Differential Side Shim
(7) Bearing Holder (Left)
(8) Differential Lock Clutch
(9) Differential Gear Shaft (Left)
(10) Differential Lock Fork
(11) Differential Lock Lever
(12) Brake Assembly (Left)
(13) Front Axle (Right)
(14) Axle Case (Right)
(15) 55T Gear
(16) 55T Gear
(17) Collar
(18) Axle Case (Left)
(19) Front Axle (Left)

The front axles are semi-floating type. They not only drive the front wheels but also support the tractor body.

The spiral bevel pinion shaft meshes with the ring gear on differential (5), and they reduce the speed to approx. 1/6.17. The differential side gear, in the differential is splined to the left or right differential gear shaft (2), (9).

The integral 12T gear on each differential gear shaft (2), (9) meshes with 55T gear (15), (16), and they reduce the speed to approx. 1/4.58.

The 55T gear is splined to front axle (13), (19) and front wheels are driven.

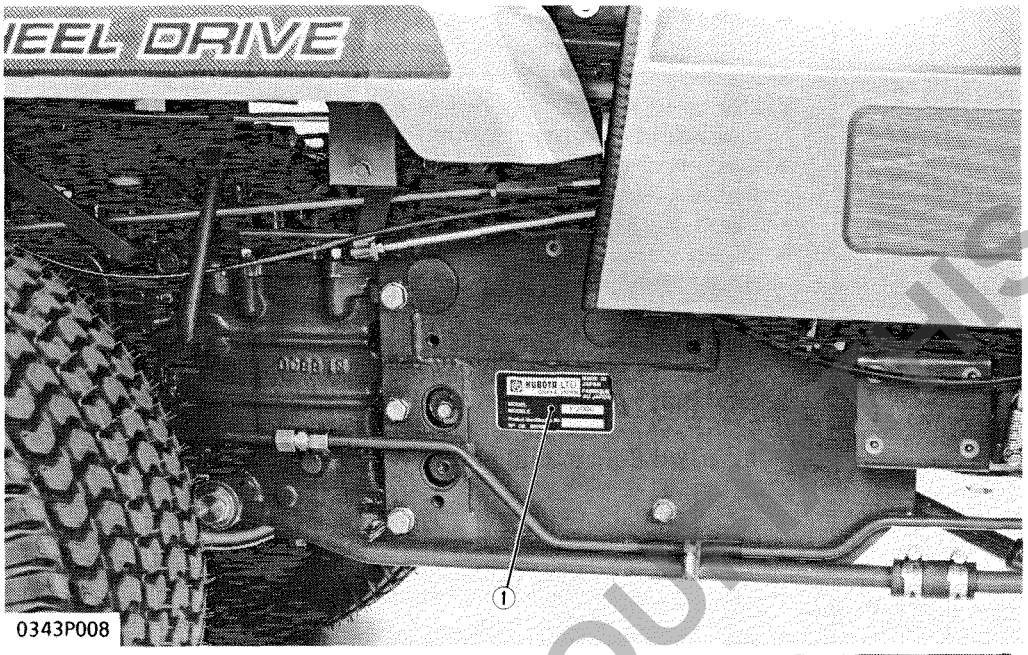
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G GENERAL

[1] FRONT MOWER IDENTIFICATION

When contacting your local KUBOTA distributor, always specify "Front Mower Product Identification Number" and hourmeter reading.



0343P008

(1) Front Mower Product Identification Number



0343P009

(2) Hour Meter

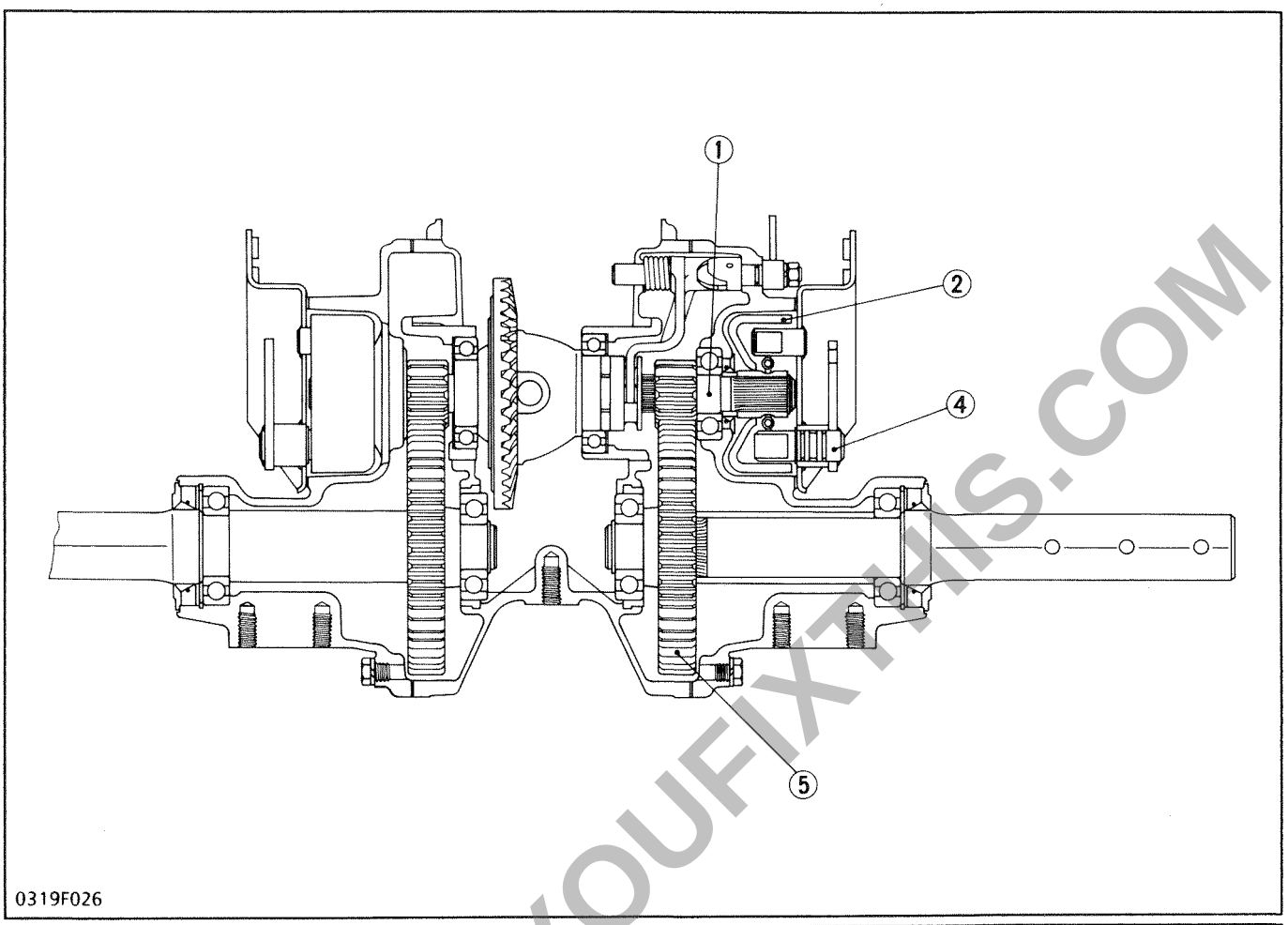
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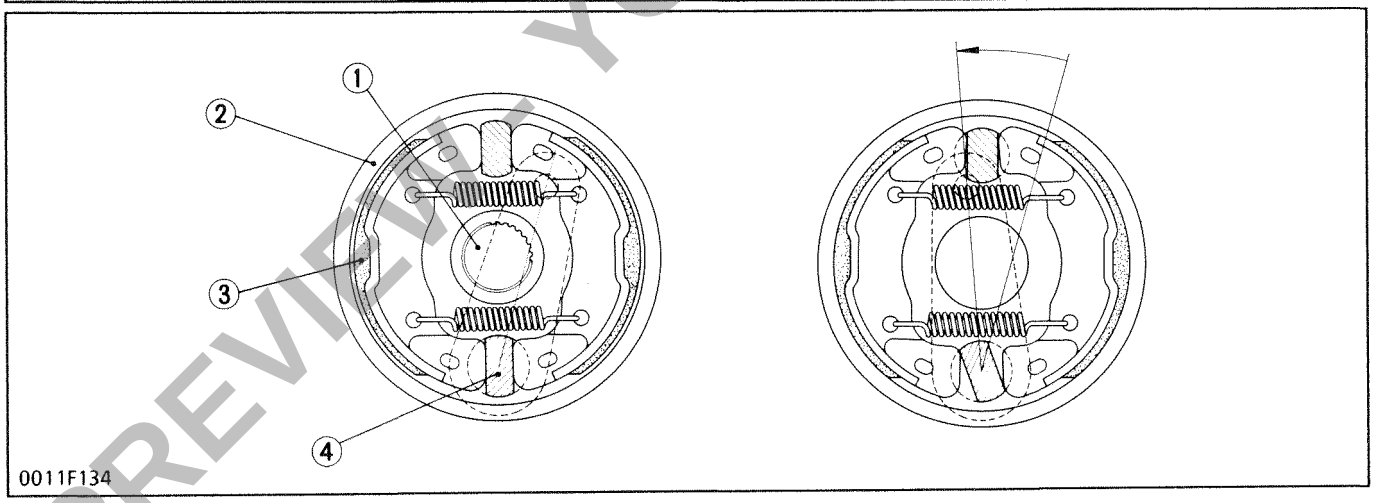
S.G GENERAL

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0319F026



0011F134

(1) Differential Gear Shaft
(2) Brake Drum
(3) Brake Shoe
(4) Brake Cam
(5) 55T Gear

Brake drum (2) is splined to differential gear shaft (1) and the integral gear on the differential gear shaft meshes with 55T gear (5) splined to the front axle. Brake shoes (3) are supported with the brake cover on the axle case. When the brake pedal is stepped on, the brake rod is pulled and brake cam (4) rotates, expanding the brake shoes outward against the brake drum.

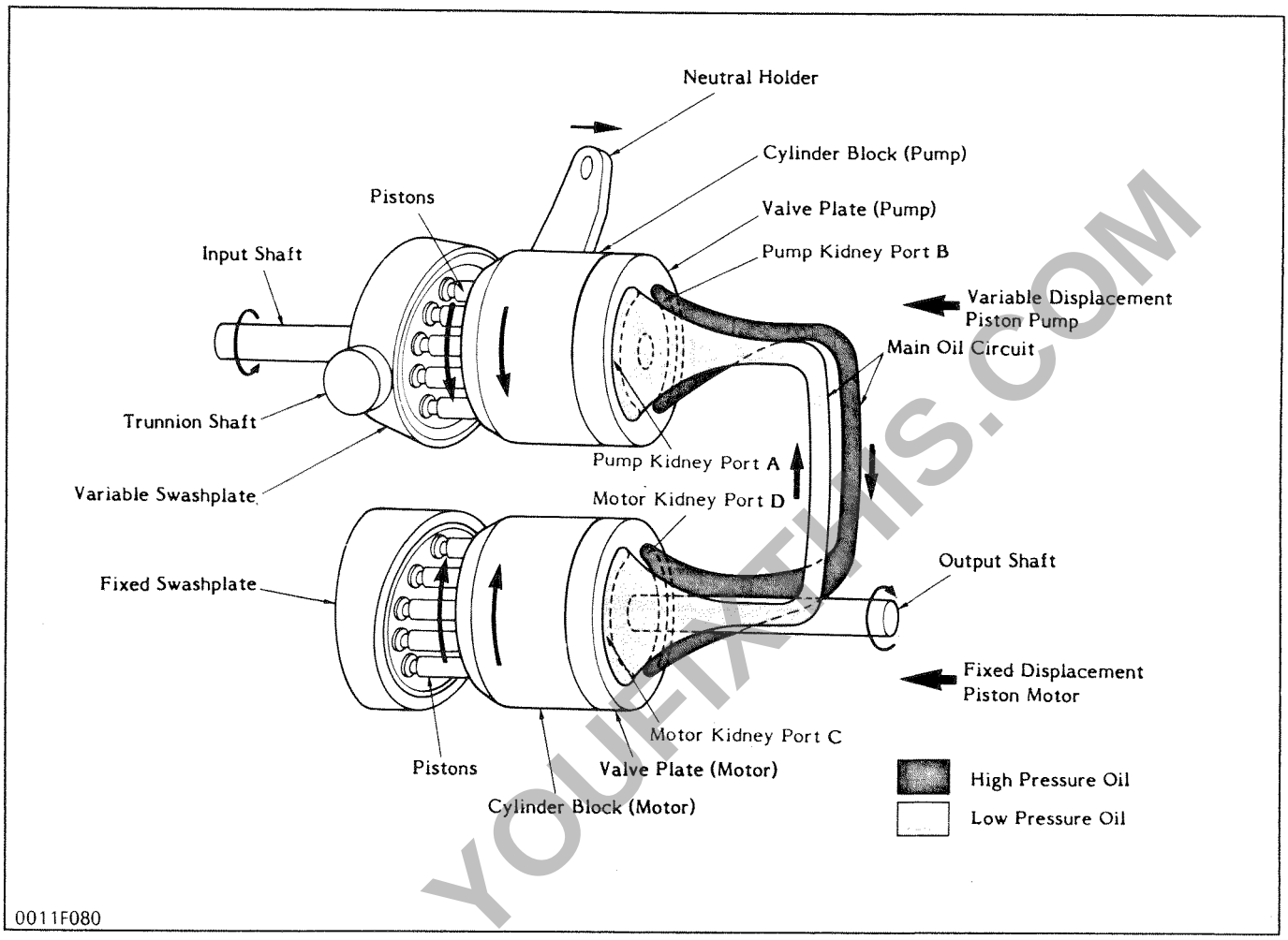
As the shoes are pressed against the drum, the rotation of the differential gear shaft is retarded, which in turn stops or slows the rotation of the front axle.

The same amount of braking force is produced for both forward and reverse.

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■ Forward



When the speed control pedal is stepped on and in forward, the variable swash plate is tilted as shown in figure above.

As the pump cylinder block rotates with the input shaft, oil is forced out of pump kidney port B at high pressure. As pressure oil enters motor kidney port D, the pistons, which align with D port, are pushed against the swash plate and slide down the inclined surface.

Then the output shaft rotates with the motor cylinder block. This drives the machine forward and the angle of pump swash plate determines the output shaft speed.

As the motor cylinder block continues to rotate, oil is forced out of motor kidney port C at low pressure and returns to the pump.

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S.1 ENGINE

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HYDROSTATIC TRANSMISSION (Continued)

Item		Factory Specification	Allowable Limit
Neutral Valve Spring (1)	Free Length	19.71 mm 0.7770 in.	–
	Setting Length	15.0 mm 0.591 in. (load 27 N 2.7 kgf 6.0 lbs)	–
		11.0 mm 0.43 in. (load 49.0 N 5.0 kgf 11 lbs)	–
Neutral Valve Spring (2)	Free Length	29.7 mm 1.169 in.	–
	Setting Length	15.0 mm 0.591 in. (load 17 N 1.7 kgf 3.7 lbs)	–
		11.0 mm 0.43 in. (load 21.18 N 2.16 gf 4.76 lbs)	–
Check Valve Spring	Free Length	26.91 mm 1.183 in.	–
	Setting Length	19.5 mm 0.768 in. (load 3.128 N 0.319 kgf 0.763 lbs)	–
		16.2 mm 0.638 in. (load 4.51 N 0.460 gf 1.014 lbs)	–
Piston to Bore	Clearance	0.02 mm 0.0008 in.	0.004 mm 0.0016 in.
Slipper	Thickness	3.00 mm 0.118 in.	2.90 mm 0.114 in.

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CONNECTING ROD

Item		Factory Specification	Allowable Limit
Connecting Rod	Alignment	–	0.05 mm 0.0020 in.
Piston Pin to Small End Bushing	Clearance	0.014 to 0.038 mm 0.0006 to 0.0015 in.	0.15 mm 0.0059 in.
Piston Pin	O.D.	22.002 to 22.011 mm 0.8662 to 0.8666 in.	–
Small End	I.D.	22.025 to 22.040 mm 0.8671 to 0.8677 in.	–

CRANKSHAFT

Crankshaft	Alignment	–	0.08 mm 0.0031 in.
Crankshaft to Crankshaft Bearing 1	Oil Clearance	0.034 to 0.114 mm 0.0014 to 0.0045 in.	0.20 mm 0.0079 in.
Crankshaft	O.D.	47.934 to 47.950 mm 1.8872 to 1.8878 in.	–
Crankshaft Bearing 1	I.D.	47.984 to 48.048 mm 1.8891 to 1.8917 in.	–
Crankshaft to Crankshaft Bearing 2	Oil Clearance	0.034 to 0.095 mm 0.0014 to 0.0037 in.	0.20 mm 0.0079 in.
Crankshaft	O.D.	47.934 to 47.950 mm 1.8872 to 1.8878 in.	–
Crankshaft Bearing 2	I.D.	47.984 to 48.029 mm 1.8891 to 1.8909 in.	–
Crankshaft to Crankshaft Bearing 3	Oil Clearance	0.034 to 0.098 mm 0.0014 to 0.0039 in.	0.20 mm 0.0079 in.
Crankshaft	O.D.	51.921 to 51.940 mm 2.0441 to 2.0449 in.	–
Crankshaft Bearing 3	I.D.	51.974 to 52.019 mm 2.0462 to 2.0480 in.	–
Crank Pin to Crank Pin Bearing	Oil Clearance	0.029 to 0.091 mm 0.0012 to 0.0036 in.	0.20 mm 0.0079 in.
Crank Pin	O.D.	39.959 to 39.975 mm 1.5732 to 1.5738 in.	–
Crank Pin Bearing	I.D.	40.004 to 40.050 mm 1.5750 to 1.5768 in.	–
Crankshaft	Side Clearance	0.15 to 0.31 mm 0.0059 to 0.0122 in.	0.50 mm 0.0197 in.

FLYWHEEL

Flywheel	Deflection	–	0.05 mm 0.0020 in.

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