WSM

WORKSHOP MANUAL
TRACTOR

M9540
DUAL SPEED
(SUPPLEMENT)

Kubota

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KiSC issued 03, 2009 A

GENERAL

CONTENTS

1. SPECIAL TOOLS DG-1
[1] SPECIAL TOOLS FOR TRACTOR DG-1

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⚠ SAFETY FIRST

This symbol, the industry's "Safety Alert Symbol", is used throughout this manual and on labels on the machine itself to warn 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.

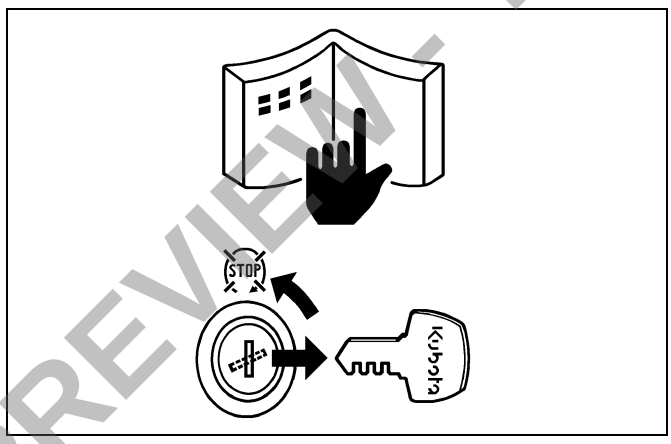
⚠ **DANGER** : **Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.**

⚠ **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.

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SPECIFICATIONS

Model			M9540 Cabin Dual Speed
			4WD
Engine	Model		V3800DI-TE3
	Type		Vertical, water-cooled, 4-cycle direct injection diesel engine
	Number of cylinders		4
	Total displacement		3769 cm^3 (230.0 cu.in.)
	Bore and stroke		100 × 120 mm (3.9 × 4.7 in.)
	Rated speed		2600 min^{-1} (rpm)
	Net power*1		70.8 kW (95 HP)
	PTO power*1 (Factory observed)		62.7 kW (84 HP)
	Maximum torque		316.0 N·m (32.22 kgf·m, 233.1 lbf·ft) / 1500 to 1700 min^{-1} (rpm)
	Battery capacity		12 V, RC : 160 min, CCA : 900 A
	Fuel tank capacity		110 L (29.1 U.S.gals., 24.2 Imp.gals.)
	Engine oil capacity		10.7 L (11.3 U.S.qts., 9.4 Imp.qts.)
	Coolant capacity		9.0 L (9.5 U.S.qts., 7.9 Imp.qts.)
Dimensions	Overall length		3760 mm (148 in.)
	Overall width (min. tread)		2010 mm (79 in.)
	Overall height		2570 mm (101 in.)
	Wheel base		2250 mm (88.6 in.)
	Tread	Front	1520, 1620 mm (59.8, 63.8 in.)
		Rear	1520 to 1920 mm (59.8 to 75.6 in.)
	Minimum ground clearance	Drawbar bracket	450 mm (17.7 in.)
Weight			2800 kg (6175 lbs)
Traveling system	Standard tire size	Front	12.4-24
		Rear	18.4-30
	Clutch		Multiple wet discs
	Steering		Hydraulic power steering
	Braking system		Hydraulic wet discs
	Differential		Bevel gears with differential lock (Rear)
Hydraulic system	Hydraulic control system		Position, draft (top link sensing) and mix control
	Pump capacity		64.3 L (17.0 U.S.gals., 14.1 Imp.gals.) / min.
	3-point hitch		SAE Category II
	Max. lifting force	At lift points*2	3900 kg (8600 lbs)
		24 in. behind lift points*2	3300 kg (7275 lbs)
	Remote hydraulic control		1 remote valves (2nd, 3rd and flow control valve option)
	System pressure		19.6 MPa (200 kgf/cm^2, 2844.7 psi)
Traction system			Swinging drawbar, adjustable in direction
PTO	Live PTO (Indipen-dent)	Direction of turning	Clockwise, viewed from tractor rear
		PTO speed	6 spline : 540 min^{-1} (rpm) / 2205 min^{-1} (rpm) engine speed

Note : *1 : Manufacture's estimate
*2 : At lower link end with links horizontal.
The company reserves the right to change the specifications without notice.

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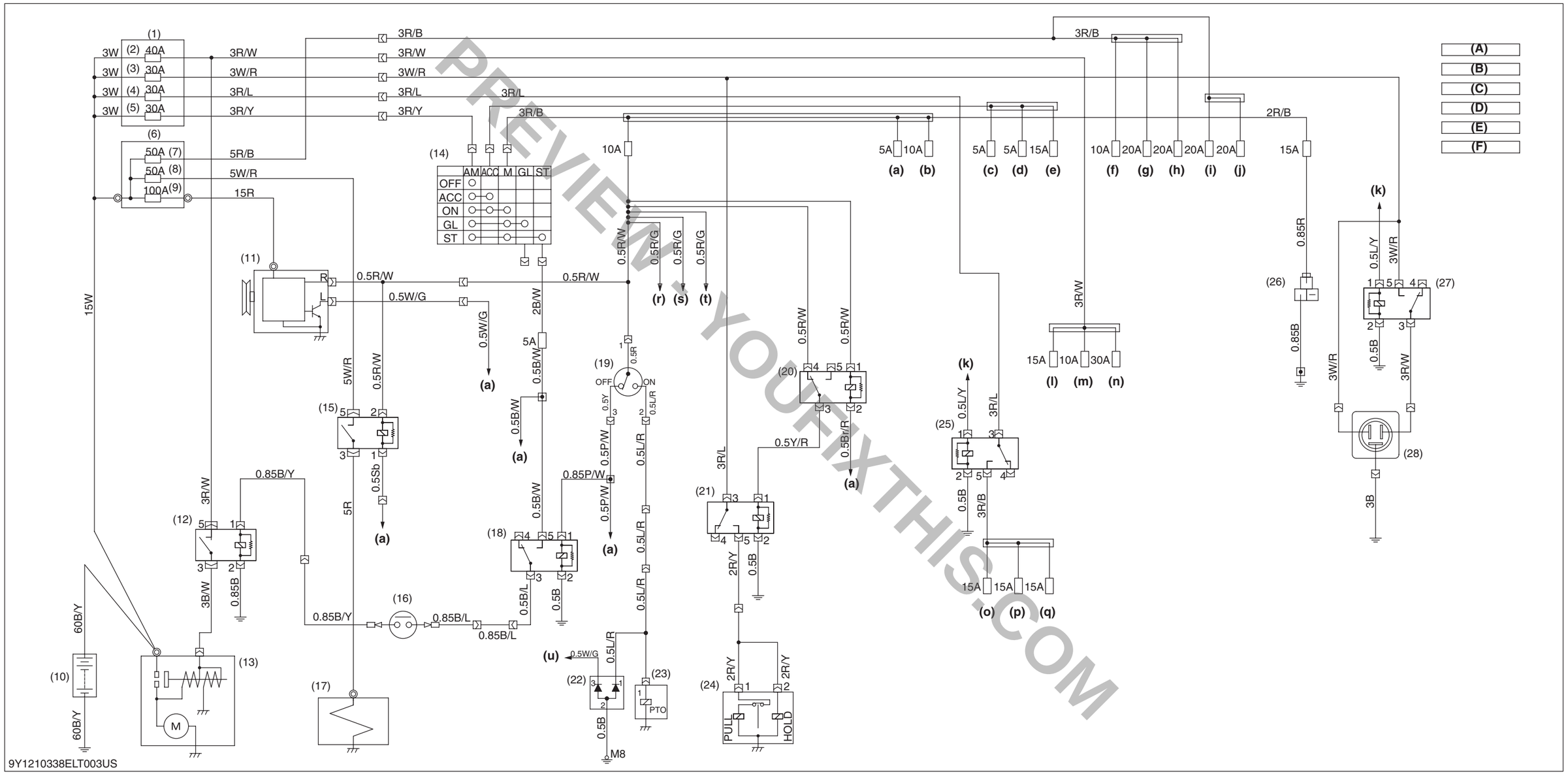
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2. ELECTRICAL CIRCUIT DETAILED CHART

[1] DUAL SPEED MODEL

(1) Starting System and Charging System



9Y1210338ELT003US

(1) Slow Blow Fuse Box 2
(2) Blower
(3) B
(4) ACC
(5) KEY
(6) Slow Blow Fuse Box 1
(7) Light/Defogger
(8) Heater
(9) Charge
(10) Battery
(11) Alternator
(12) Starter Relay
(13) Starter Motor
(14) Main Key Switch
(15) Heater Relay
(16) Shuttle Neutral Switch
(17) Intake Air Heater
(18) PTO Safety Relay
(19) PTO Switch
(20) Engine Stop Relay
(21) Key Stop Relay
(22) Diod (PTO/DT)
(23) PTO/DT Valve (Solenoid)
(24) Key Stop Solenoid
(25) Working Light Relay
(26) Auxiliary Power Connector
(27) Auxiliary Power Relay
(28) Auxiliary Power Socket (Option)

(A) Head Light
(B) Blower Motor
(C) Auxiliary Power
(D) ACC
(E) Key ACC
(F) Key IG

(a) To Meter Panel
(b) To Combination Light Switch
(c) To Radio
(d) To Air Conditioner (Control)
(e) To Wiper
(f) To Meter, Radio
(g) To Head Light, Tail Lamp
(h) To Flasher (Hazard)
(i) To Rear Window Defogger
(j) To Quarter Window Defogger
(k) To Radio Fuse 5A
(l) To Working Light (Front Side)
(m) To Air Conditioner (Compressor)
(n) To Air Conditioner (Fan Motor)
(o) To Working Light (Rear)
(p) To Working Light (Front)
(q) To Cigarette Lighter
(r) To 4WD Switch
(s) To Rear Diff. Lock Switch
(t) To Dual Speed Switch
(u) To DT Solenoid Valve

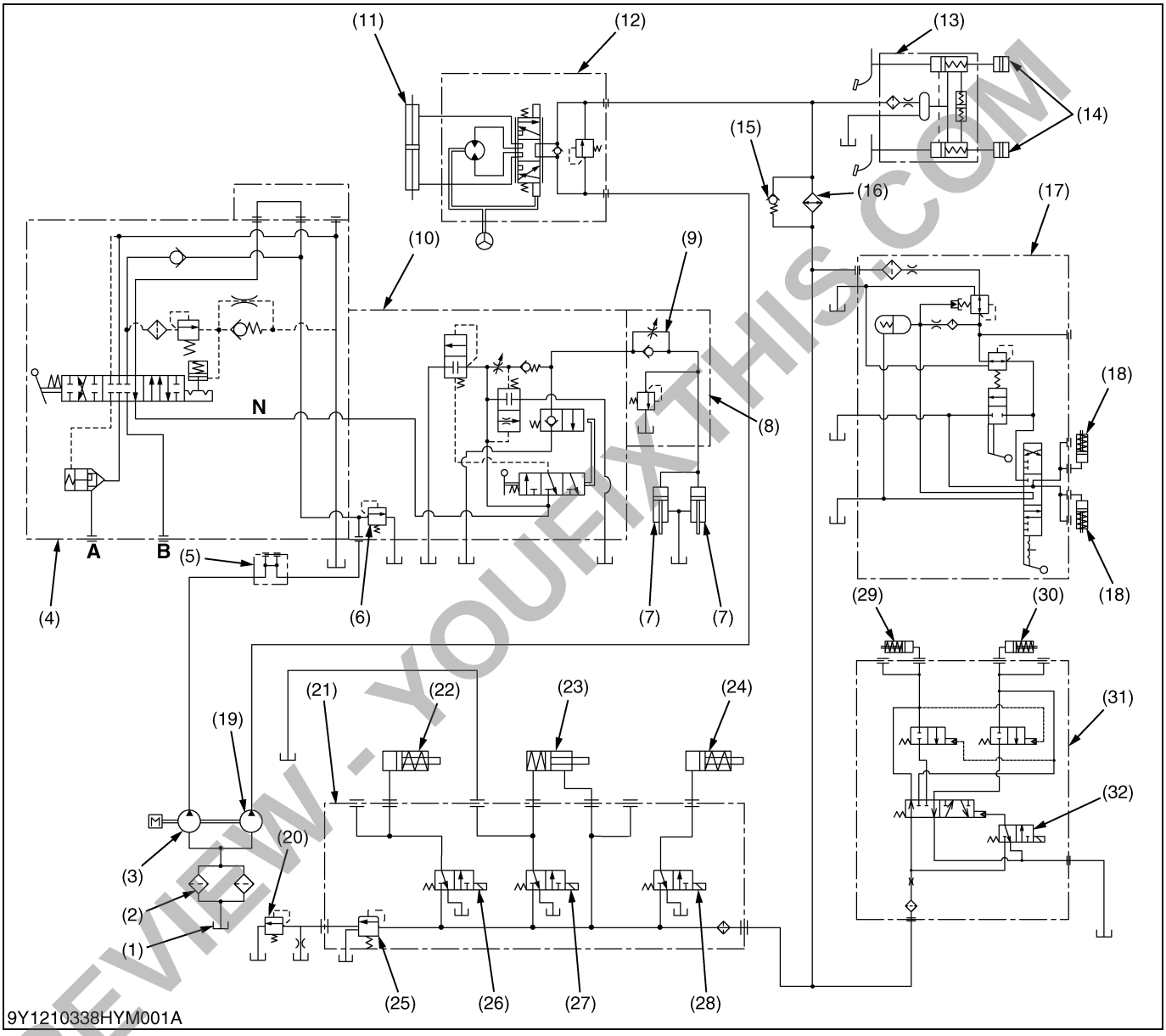
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2. HYDRAULIC CIRCUIT

[1] TOTAL HYDRAULIC CIRCUIT

(1) F24/R24 Speed Transmission Model



(1) Oil Tank (Transmission Case)
(2) Hydraulic Oil Filter Cartridge
(3) Hydraulic Pump (for 3-point)
(4) Auxiliary Control Valve
(5) Hydraulic Outlet
(6) Relief Valve for 3-point
(7) Exterior Hydraulic Cylinder
(8) Cylinder Safety Valve
(9) Lowering Speed Adjusting Valve
(10) Control Valve (for 3-point)
(11) Steering Cylinder
(12) Power Steering Controller
(13) Brake Master Cylinder
(14) Brake Piston
(15) Oil Cooler Check Valve (Cabin Model)
(16) Oil Cooler
(17) Shuttle Valve
(18) Shuttle Clutch Pack
(19) Hydraulic Pump (Power Steering and System Line)
(20) Relief Valve (for Lubricating Line)
(21) Solenoid Valve Assembly
(22) PTO Clutch Pack
(23) 4WD Clutch Pack
(24) Rear Differential Lock Piston
(25) Relief Valve (for System)
(26) Solenoid Valve (PTO)
(27) Solenoid Valve (4WD)
(28) Solenoid Valve (Rear Differential Lock)
(29) Clutch Pack (Hi)
(30) Clutch Pack (Lo)
(31) Hi-Lo Dual Speed Valve
(32) Solenoid Valve (Dual Speed)

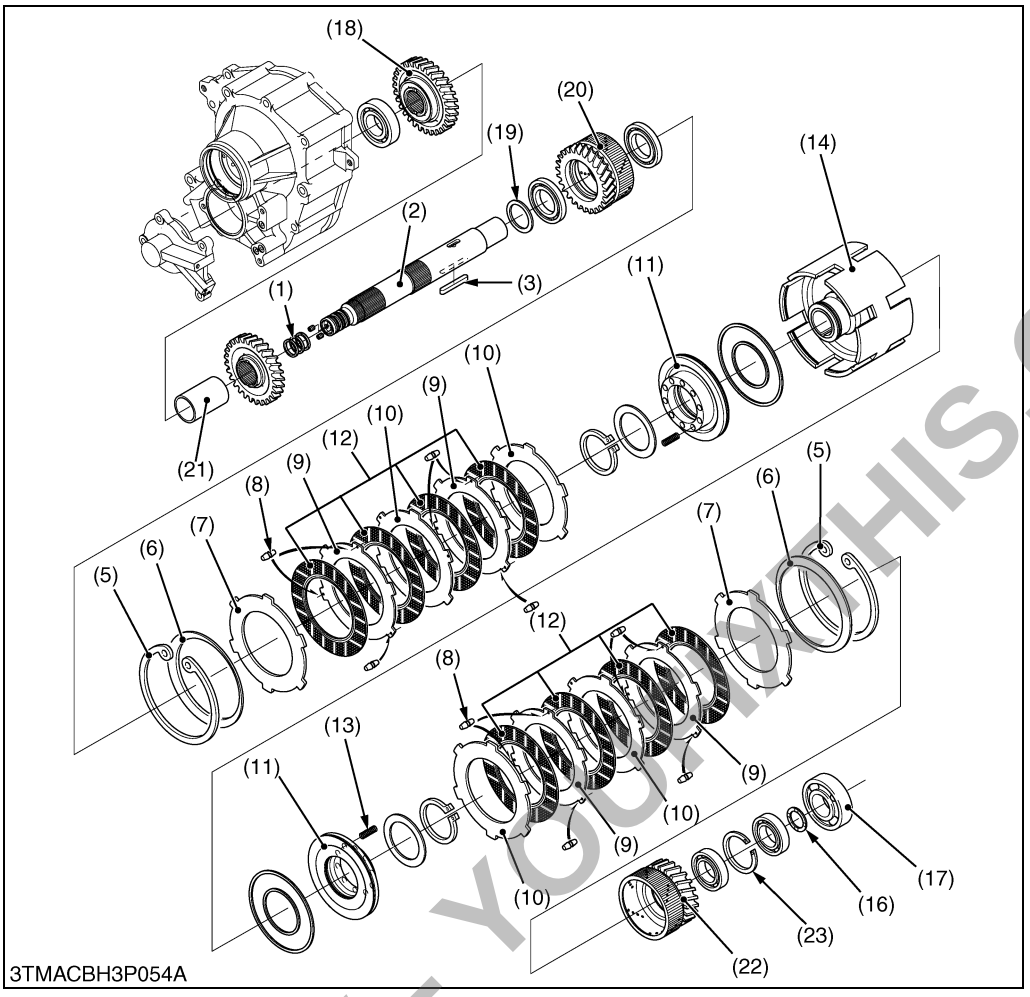
A : To Implement Cylinder
B : To Implement Cylinder
N : N Port

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(2) Shuttle Clutch Assembly

Shuttle / Hi-Lo Dual Speed Clutch Assembly (F24/R24 Speed Transmission Model)



(1) Seal Ring
(2) Shuttle Shaft
(3) Key
(4) 28T Gear
(5) Internal Circlip
(6) Belleville Washer (Cupped Spring Washer)
(7) Pressure Plate
(8) Rubber
(9) Steel Plate with Rubber
(10) Steel Plate without Rubber
(11) Piston
(12) Disc
(13) Spring
(14) Clutch Body
(15) 26T Gear
(16) Washer
(17) Bearing
(18) 31T Gear
(19) Collar
(20) 27T Gear
(21) Spacer
(22) 24T Gear
(23) Internal Circlip

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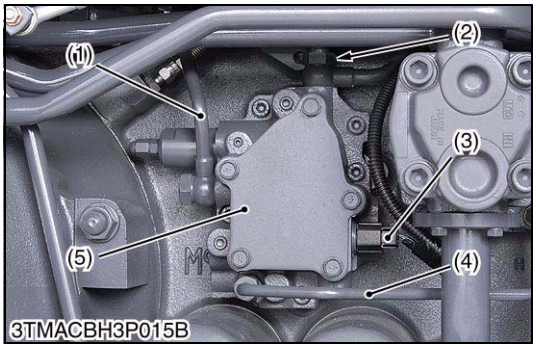
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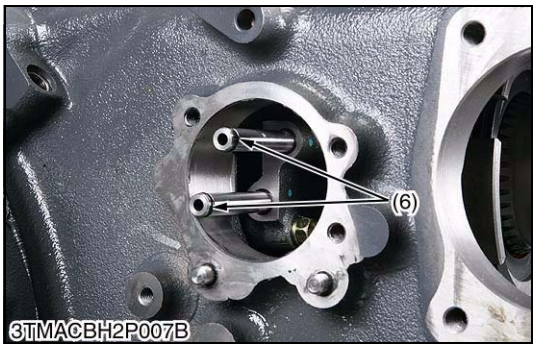
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4. DISASSEMBLING AND ASSEMBLING

[1] SOLENOID VALVE ASSEMBLY AND DUAL SPEED SOLENOID VALVE

(1) Solenoid Valve Assembly





Solenoid Valve Assembly

1. Remove the I-joint screw (delivery pipe) (2) and differential lock (1).
2. Remove the return pipe (4) for F36/R36 speed transmission model.
3. Disconnect the connector (3).
4. Remove the solenoid valve assembly (5).

(When reassembling)

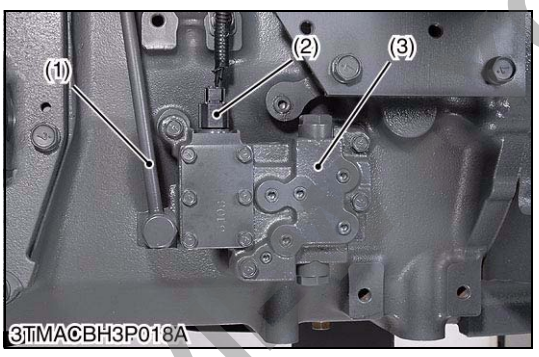
- Apply transmission fluid to the O-rings (6).
- Apply liquid gasket (Three Bond 1208D or equivalent) to joint face of transmission case and solenoid valve assembly.

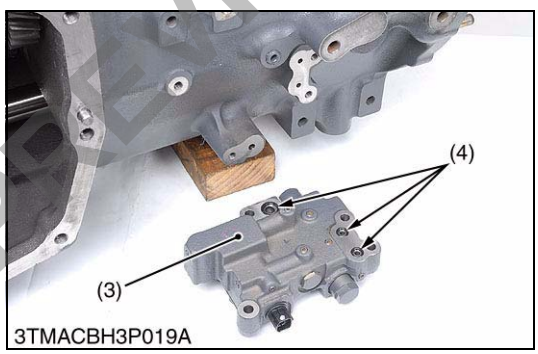
Tightening torque	Joint screw for hydraulic pipe	29.4 to 34.3 N·m 3.0 to 3.5 kgf·m 21.7 to 25.3 lbf·ft
	Return pipe retaining nut	22.6 to 27.5 N·m 2.3 to 2.8 kgf·m 16.6 to 20.3 lbf·ft

(1) Pipe (Differential Lock)
(2) Pipe (Delivery)
(3) Connector
(4) Return Pipe
(5) Solenoid Valve Assembly
(6) O-ring

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(2) Dual Speed Solenoid Valve (F24/R24 Speed Transmission Model)





Dial Speed Valve Solenoid Assembly

1. Disconnect the harness coupler (2).
2. Remove the dual speed valve delivery pipe (1).
3. Remove the dual speed solenoid valve (3).

(When reassembling)

- Be sure to fix the O-rings (4) in position as shown photo and apply transmission fluid to the O-rings (4).

Tightening torque	Joint screw for hydraulic pipe	29.4 to 34.3 N·m 3.0 to 3.5 kgf·m 21.7 to 25.3 lbf·ft

(1) Dual Speed Solenoid Valve Delivery Pipe
(2) Coupler
(3) Dual Speed Solenoid Valve
(4) O-ring

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