Massey Ferguson®

Model 1428V / 1431 Hydro Tractor

WORKSHOP SERVICE MANUAL
4283008M1

CONTENTS

Part Number 4283008M1 (English)

Printed in U.S.A.
August, 2005

GENERAL INFORMATION

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TRACTOR TYPES AND PUNCHED IDENTIFICATION MARKS

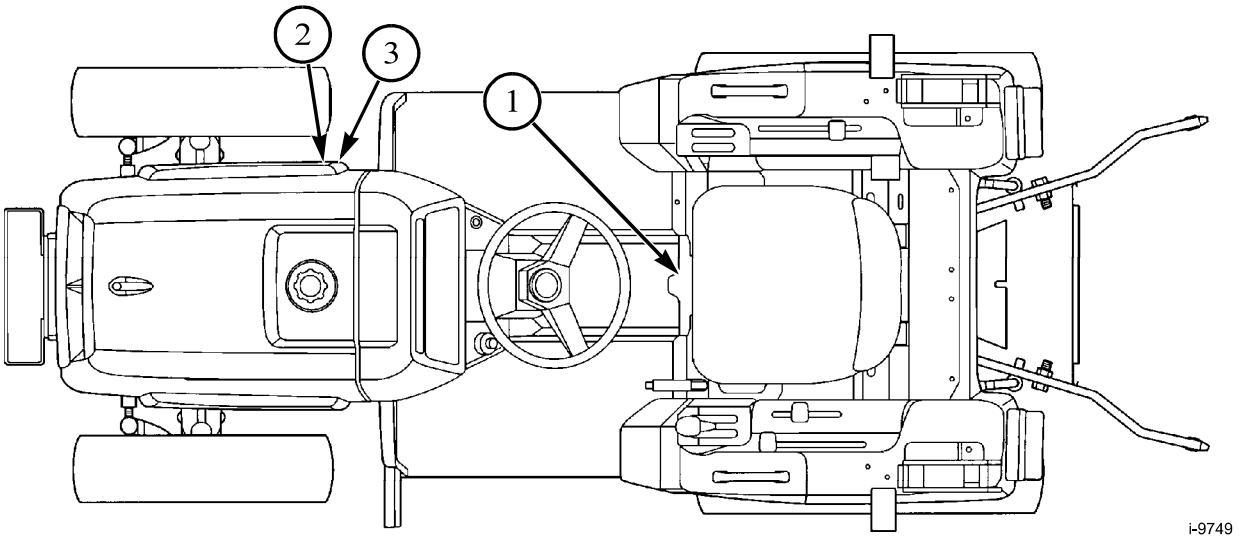

FIG. 1

FIG. 1: Shown is the Model name plate (1).

Punched model name and serial number (2) is on the right side of the frame.

Cast engine model name and punched engine serial number (3) on the right side wall the cylinder block.

Name Plate

FIG. 2

FIG. 2: Model name plate.

FH……HST transmission, 4WD

M……Mid-PTO

D……Dual clutch

R……..ISEKI ROPS (optional)

E41…….Agri tires

FIG. 3: Engine model and serial number.

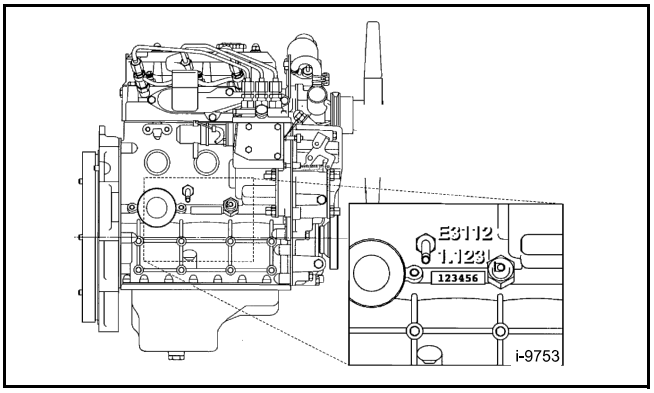

FIG. 3

Specifications

TABLE 1

	1428V/ST30X 4WD	1431 4WD
Dimensions (with Agri-tires): inch(mm)		
Overall length	116.5(2960)	
Overall width	55.5(1410)	
Overall height (to the top of steering wheel)	54.7(1390)	
Overall height (to the top of ROPS)	79.1(2010)	
Wheel base	65.6(1665)	
Wheel tread Front (6-14)	37.8(960)	
Rear (12.4-16)	43.2(1096)	
Minimum ground clearance (under PTO bottom)	8.3(210)	
Minimum turning radius: without brake	220.5(5600)	
Weight (with Rops & Seat) lbs.(kg)	2204.6(1000)	2215.6(1005)
ENGINE		
Make	Iseki Diesel	
Model	E3CF-VB22	E3CD-VB32
Type	Water-cooled, 4-cycle, 3-cylinder, Diesel, Indirect injection, overhead valve	
Aspiration	Natural	
Displacement cu.in. (cc)	89.3 (1463)	91.4 (1498)

TABLE 1

	1428V/ST30X 4WD	1431 4WD
ENGINE (Cont)		
Number of Cylinders	3	
Bore inch (mm)	3.39(86)	3.43(87)
Stroke inch (mm)	3.30 (84)	
Engine Horsepower (Gross)	28.4 HP (21.2 kWh) @ 2500 rpm	33.0 HP (24.6 kW) @ 2600 rpm
(Net)	28.0 PS (20.6 kW) @ 2500 rpm	32.0 PS (23.5 kW) @ 2600 rpm
PTO Horsepower (Estimate)	22.3 HP	25.9 HP
Firing Order	1-3-2	
Compression Ratio	21.7 to 1	
Combustion chamber type	Swirl type	
Low Idle Speed rpm	930-970	980-1020
High Idle Speed rpm	2650-2750	2760-2860
Valve Clearance (Cold); Intake inch (mm)	0.014 (0.35)	
Valve Clearance (Cold); Exhaust inch (mm)	0.014 (0.35)	
Air Cleaner	Dual stage, dry element	
Engine Cooling	Liquid, forced circulation	
Starting method	Starter motor with pre-heater	
Cold Starting Aid	Glow plugs (3)	
Fuel	Diesel	

			1428V/ST30X 4WD	1431 4WD
Chassis				
Clutch	Main		None	
	Rear/ Mid PTO		Hydraulically engaged, multi-plate wet disk	
Transmission	Main		Infinite control	
	Sub		3 speeds constant mesh	
Differential			Bevel gears with differential lock	
Brakes			Wet, multi-disc, mechanical	
Steering system			Orbit roll type power-assisted	
Tire size	(Agri)	Front	6-14	
		Rear	12.4-16	
Axle type		Front	Center-pin	
		Rear	Center-axle	
Maximum axle loading	lbs.(kg)	Front	1929 (875)	
		Rear	2207 (1000)	
Implement Lift				
Operation			Hydraulic	
Mounting method			3-point hitch	
Drawing method			Trailer hitch	
3-point hitch category			Category 1	
Self-control			Position (OPT draft control)	
Lift capacity (at the ball ends of lower links) lbs.(kg)			2425 (1100)	
Power Take-Off (PTO)				
Type			Independent, engine driven	
Control			Electro-hydraulic control	
Clutch			Hydraulically engaged, multi-plate wet disk	
Rear PTO; Shaft	inch (mm)		1.375 (35) diameter, six spline	
	Output		Clockwise rotation	
	Engine Speed @ engine rpm		581@2500	604@2600
Hydraulics				
Steering System; Type			Hydrostatic (power)	
	Pump		Engine-mounted gear pump	
	Maximum Output		2.6 U.S. gals./min (9.8 l/min) at 2500 rpm	2.7 U.S. gals./min (10.2 l/min) at 2600 rpm
Pressure	psi (k)		1707 psi (11772 kPa)	
Main Hydraulic System; Pump			Engine-mounted gear pump	
Maximum Output			7.4 U.S. gals./min (28.0 l/min) at 2500rpm	7.7 U.S. gals./min (29.2 l/min) at 2600rpm

	1428V/ST30X 4WD	1431 4WD
Hydraulics (Cont'd)		
Pressure	Relief valve setting 2134 psi (14715 kPa)	
Electrical system		
System voltage	12 volt, negative (-) ground	
Battery cca @ 0F(-18)	582 cca	
Charging	40 amp alternator with internal regulator/rectifier	
Capacities		
Engine crankcase with filter U.S. qts. (liters)	3.8 (3.6)	4.6 (4.4)
Transmission U.S. gals. (liters)	7.7 (29.0)	
Fuel tank U.S. gals. (liters)	6.1(23.0)	
Cooling system U.S. qts. (liters)	7.5 (7.1)	
Front drive axle U.S. qts. (liters)	4.7 (4.5)	

Traveling Speeds

SHIFT POSITIONS	1428V/ST30X Hydrostatic (Engine 2500 rpm)		1431 Hydrostatic (Engine 2600 rpm)	
Range	MPH	KPH	MPH	KPH
Tire	Agri		Agri	
	Forward		Forward	
	3.32	5.35	3.45	5.56
1 	7.16	11.52	7.44	11.98
2 	13.32	21.44	13.86	22.30
Max Speed (Forward)	High Idle 2750 rpm		High Idle 2810 rpm	
	14.65	23.58	14.98	24.10
	Reverse		Reverse	
	2.33	3.75	2.42	3.89
1 	5.01	8.06	5.21	8.39
2 	9.33	15.01	9.70	15.61
Max. Speed (Reverse)	High Idle 2750 rpm		High Idle 2810 rpm	
	10.21	16.51	10.48	16.87

GENERAL PRECAUTIONS FOR SEPARATION AND RE-INSTALLATION

Before Operation

Always be safety-conscious in selecting clothes to wear and suitable tools to use.

Before disassembly, be sure that you familiarize yourself with the assembled condition for subsequent reference in reassembly.

Keep parts and tools in proper order during operations.

When servicing electrically live parts, be sure to disconnect the negative battery terminal.

To prevent oil or water leaks, use the liquid gasket as required.

When reassembling disassembled parts, discard used gaskets, O-rings, or oil seals and install new ones.

When lifting up only the front or rear part of the tractor, be sure to wedge the grounded wheels.

When the tractor is jacked up, be sure to support the entire tractor with something like a stand. Lifting it up with a jack only is a dangerously unstable procedure.

When replacing parts, use authorized, genuine AGCO parts only. AGCO assumes no responsibility for accidents, operating problems or damage caused by the use of imitation parts. Also, the use of unauthorized parts will result in relatively poor machine performance.

Precautions to be Followed When Installing Common Parts

Roller or Ball Bearings

When a bearing is fitted in by the outer race, use an installer, which is specially designed to push only the outer race and vice versa.

The installer must be designed to install the bearing on the shaft in a parallel position.

When installing a bearing, which appears the same on both sides, install it so that the face, which has the identification number faces in a direction for easy visual identification. All the bearings, which are to be installed in the transmission case should be placed so that their identification number faces outward.

If a shaft or a hole where a bearing is to be installed has a stopper, the bearing should be pushed in completely until it is seated against the stopper.

Installed bearings should turn smoothly.

Oil Seals

Oil seal installer should be designed so as not to deform the oil seals.

During installation, be careful not to damage the lips, and assure that it is pushed in parallel to the shaft or hole.

When oil seals are installed, there should be neither turnover of the lips nor dislocation of the springs.

When a multi-lip seal is installed, the grooves between lips should be filled with grease, not adhesive.

Use a lithium-based grease.

There should be no oil or water leaks through the installed oil seals.

O-Rings

O-rings should be coated with grease before installing.

Installed O-rings should have no slack or twist.

Installed O-rings should maintain proper air tightness.

Snap Rings

Snap ring installers should be designed so as not to permanently deform the snap rings.

Installed snap rings should be seated securely in the groove.

Be careful not to overload the snap-ring to the extent that it is permanently deformed.

FIG. 4: How to install the snap-ring:

When installing the snap-ring (1) install it as shown with its round edge side (2) turned toward the part to be retained. This round edge is formed when the snap-ring is pressed out.

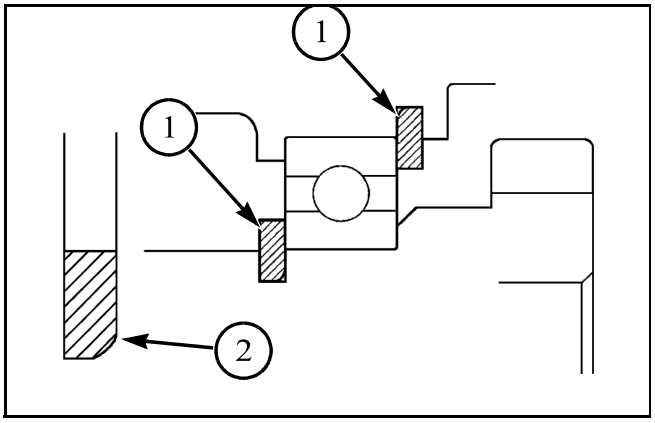

FIG. 4

Spring (Roll) Pins

FIG. 5: Spring pins should be driven in properly and tightly.

Spring pins should be installed so that their seams should face the direction from which the load is applied.

The roll pins installed in the transmission or other parts where much force is applied should be retained with wire.

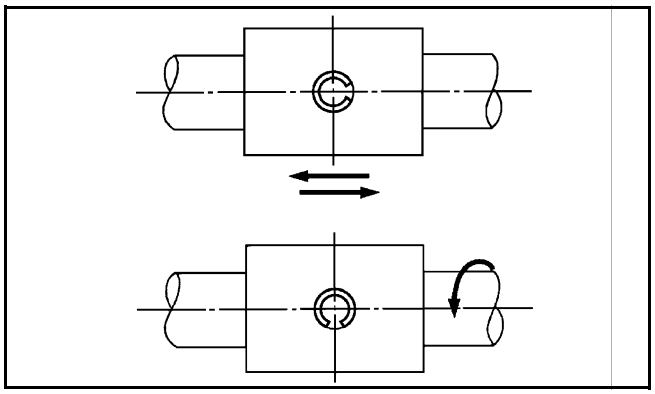

FIG. 5

Cotter Pins

FIG. 6: When installed, cotter pins should be bent securely at the ends as shown.

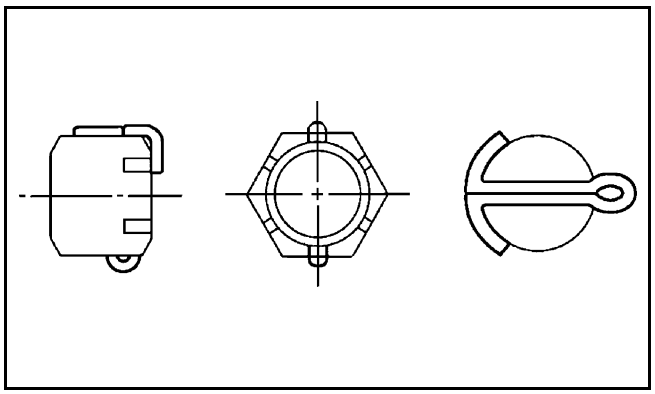

FIG. 6

Bolts and Nuts

Special bolts are installed at several locations, so be sure not to interchange them with other bolts.

Bolts and nuts should be tightened to their specified torque with a torque wrench.

When locking the bolts or nuts with wire or a lock washer, be sure to wind the wire paying sufficient attention to its winding direction and bend the lock washer for secure locking.

When locking bolts and nuts with an adhesive, apply the adhesive on the thread and tighten securely.

Apply an adhesive (THREE BOND TB 1104) to parts through which there is any possibility of oil leaks, such as stud bolts and tapped-through parts.

Each lock nut must be tightened securely.

When tightening bolts and nuts, refer to the tightening torque table.

Grease Fittings

After installation, each grease fitting should be filled with grease.

When installing grease fittings of types B and C, be sure to turn the fitting tips in a direction that will provide easy access for a grease gun.

Other Precautions

Be sure not to damage any finished surfaces or parts.

Always refrain from forcing installation.

Each lever knob should be installed coated with an adhesive (SUPER THREE CEMENT TB1702).

Each contact surface should be coated with an adhesive (THREE BOND TB1215) and tightened evenly with bolts. Adhesive coated surfaces should be installed within 30 minutes after application of the adhesive.

Precautions for applying adhesives:

- The surface or the thread where and adhesive is to be applied should be completely free of chips and oil.
- The surface or the thread where an adhesive is to be applied should be completely free of any oiliness.