MOTOR GRADER

SERVICE MANUAL

HG220

HYUNDAI

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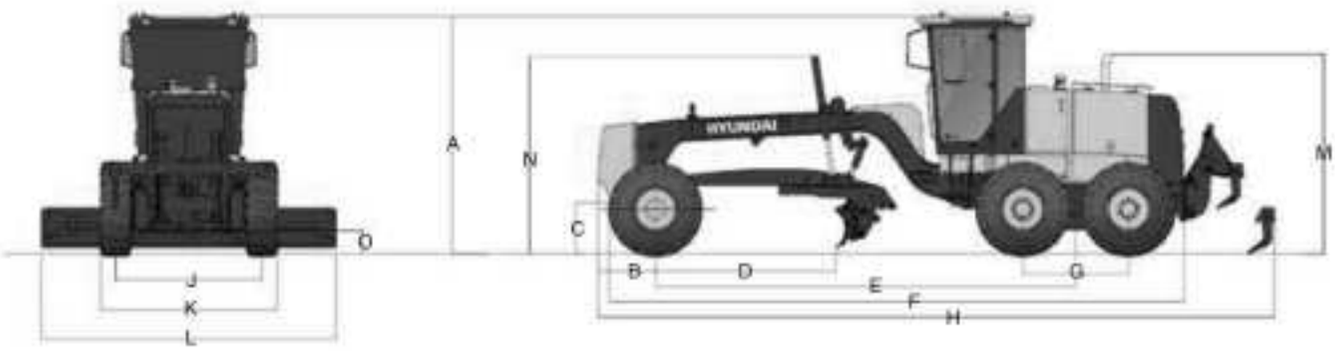
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DIMENSIONS



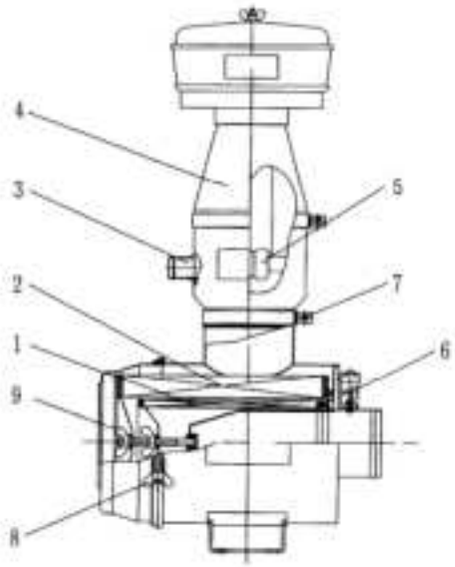
Item	Description	HG220
A	Height to Top of Non-ROPS Cabin	3,420 mm
	Height to Top of ROPS Frame	3,604 mm
B	Center of Front Axle to counterweight	963 mm
C	Ground Clearance to Center Front Axle	714 mm
D	Length of Front Axle to Moldboard	2,600 mm
E	Length of Front Axle to Mid Tandem	6,100 mm
F	Length of Front Tire to Rear of Machine	8,653 mm
G	Length of Between Tandem Axles	1,535 mm
H	Length of Between Counterweight to Ripper	8,653 mm
J	Width of Tire Center Lines	2,120 mm
K	Width of Outside Tires	2,565 mm
L	Width of Moldboard	4,320 mm
M	Height to Exhaust Stack	2,747 mm
N	Height to Top of Cylinders	2,908 mm
O	Ground Clearance to Trans. Case	339 mm

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The disassembly of cyclone paper air filter

1) Loose the clamp (7) and remove the coarse filter (4). Loose the clamp (8) and remove the cover and butterfly nut (9) and remove the paper main filter element (2) and safety filter element (1).
2) Conduct the maintenance as the method abovementioned.
3) The assembly of air filter is conducted as per the reverse sequence.

★ Avoid damaging the filter element when dismantle the filter element. When assemble the paper filter element and safety filter element, both end surfaces of them must be sealed reliable and should have no leakage. Prohibit starting and using the engine without the air filter.



Cyclone Paper Air Filter

1. Filter Element
2. Paper Main Filter Element
3. Connection of Exhaust Tube
4. Coarse Filter
5. Dust Collection Chamber
6. Alarm
7. Clamp
8. Clamp
9. Butterfly Nut

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▲ Exhaust the air in the hydraulic circuit

When replace the hydraulic pump or replace the hard pipe and hose near the pump, or replace the hard pipe and hose of the working system or steering system, exhaust the air in the working system and steering system according to the following methods:

(1) Open the cap of oil refill hole on the hydraulic oil tank;

(2) Start the engine;

(3) Make the engine running under idle speed, and extend and retract all cylinders of working system and steering system starting from the bottom of travel for 2～3 times（about 50～60 mm）.

(4) Run the engine with high speed and extend and retract all cylinders of working system and steering system under full travel for 3～5 times to exhaust the air in the pipeline.

(5) After exhaust the air, set the machine and work equipment on the standard position (park the wheels in line, the front and rear frame is in the same line, the scraper blade and frame is of 90° and put them on the ground and drop the ripper to approach the ground), then check the oil volume and tight the cap of oil refill hole;

(6) Stop the engine and check the hard pipe and hose for leakage.

(7) Notes during exhaust the air

7.1) When exhaust the air of steering oil cylinder, the scraper should be dropped and support the front frame to lift the front wheel off the ground;

7.2) When exhaust the air in the such hydraulic system as scraper blade turning, scraper side moving and scraper incline, the scraper blade should be raised;

7.3) When exhaust the air in the traction frame side incline system, the scraper should be dropped slightly;

7.4) When exhaust the air in the hinge steering system, the shift should be in Neutral position;

7.5) When the scraper is lifted and the oil cylinder of ripper is extended, the machine has been off ground. Care should be paid when conduct this operation.

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BRAKES

	HG220
Service brake	Foot operated, hydraulically actuated on four tandem wheels, 3,613㎠ total braking surface
Parking brake	Flexible shaft control, drum brake

FRAME

	HG220
Height	302 mm
Width	280 mm
Side	22 mm
Upper, Lower	25 mm

DRAWBAR

	HG220
	A-shaped, u-section press formed and welded construction for maximum strength with a replacable drawbar ball
Drawbar frame	210*16 mm

CIRCLE

	HG220
	Four circle support shoes with replaceable wear surface. Circle teeth hardened on front 180°of circle
Diameter (outside)	1,410 mm
Circle reversing control hydraulic rotation	360 °

MOLDBOARD

	HG220
	Replaceable metal wear inserts, cutting edge and bits. Cutting edge and end bits are hardened.
Dimensions	4,320*580*22 mm
Arc radius	329 mm
Cutting edge	152*16 mm

BLADE RANGE

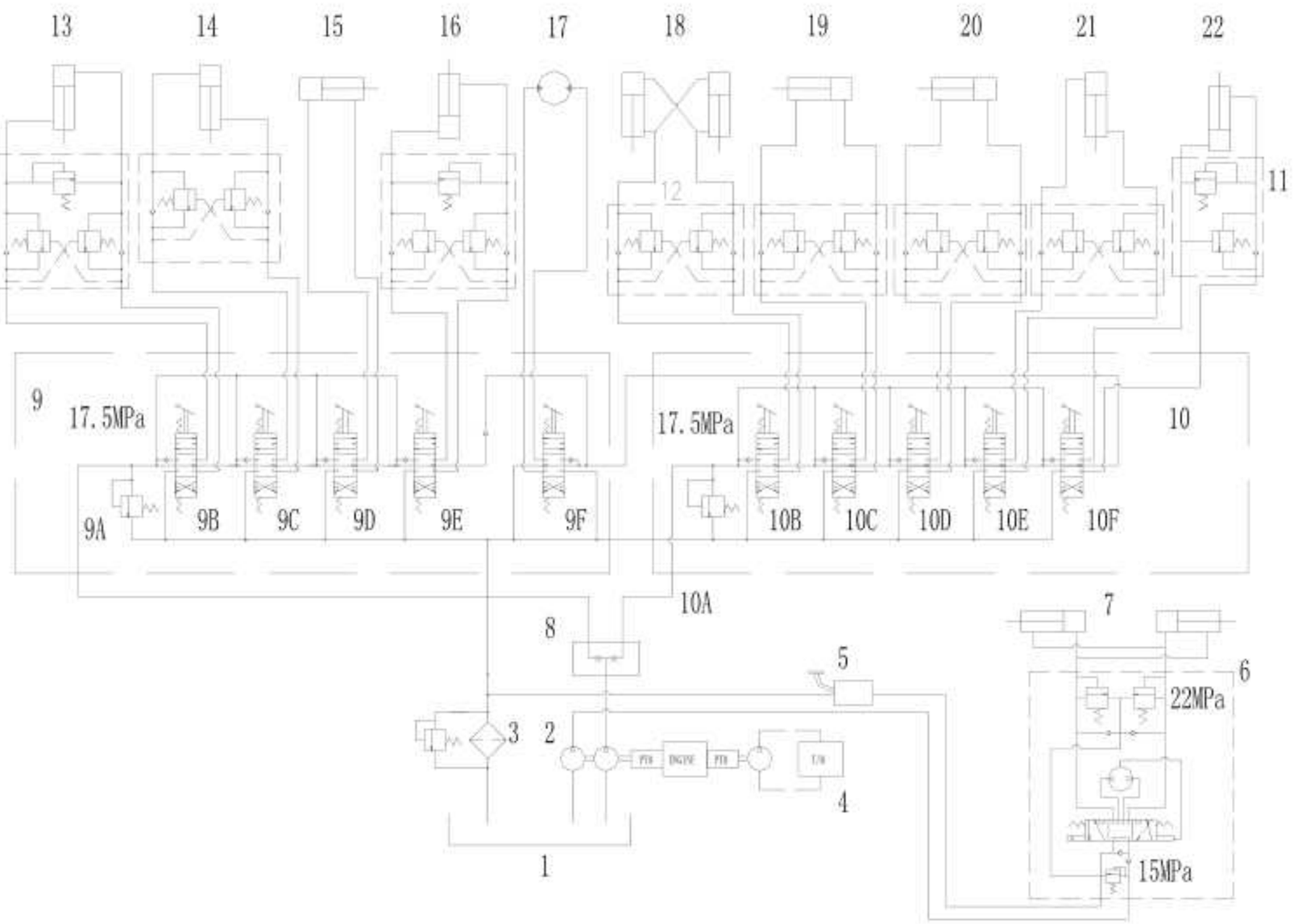
		HG220
Circle center shift	Right	525 mm
	Left	530 mm
Moldboard side shift	Right	965 mm
	Left	965 mm
Maximum shoulder reach outside rear tire (frame straight)	Right	2,367 mm
	Left	2,372 mm
Maximum lift above ground		450 mm
Maximum cutting depth		535 mm
Maximum blade angle, right or left		90 °
Blade tip angle		29-77 °

HYDRAULICS

	HG220
	Hydraulic system of double pump and double multi way valve. Priority braking and steering. There are hydraulic locks on the scraper lifting, front wheel tilting, traction frame tilting, power tilting, frame articulation and other oil circuits
Output (at engine rated prm)	99 L/min
Maximum system pressure	17.5 MPa

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The principle of hydraulic system



1.Hydraulic oil tank
2.Hydraulic and steering pump
3.Hydraulic oil filter
4.Hydraulic pump (gearbox)
5.Brake booster
6.Steering gear
7.Turning cylinder
8.Distributing valve
9.Left Control Valve
9A.Overflow valve
9B.Rear scarifier control valve (optional)
9C.Lifting cylinder (left) control valve
9D.Scraper plate side moving control valve
9E.Power incline control valve
9F.Turning control valve
10.Right control valve
10A.Overflow valve
10B.Hinge control valve
10C.Traction frame side swing control valve
10D.Incline control valve
10E.Scraper plate lifting cylinder control valve (right)
10F.Scarifier control valve (left)
11.Hydraulic-control check valve (with safety valve)
12.Hydraulic-control check valve
13.Scarifier cylinder (optional)
14.Lifting cylinder (left)
15.Scraper plate side moving oil cylinder
16.Power incline oil cylinder
17.Turning motor
18.Hinge oil cylinder
19.Traction frame side swing oil cylinder
20.Front wheel incline oil cylinder
21.Scraper plate lifting oil cylinder (right)
22.Scarifier oil cylinder (optional)

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