RPM220 LOADER-MOUNTED SNOW BLOWER
TECHNICAL SPECIFICATIONS

Designed and manufactured by R.P.M. Tech Inc.

1. General

1.1 This document contains the RPM220 snow blower technical specifications, designed and manufactured by R.P.M. Tech Inc., to be installed on a wheel loader.

1.2 This equipment is capable of handling all types of snow, including wet, heavy snow to hard packed snow. The unit is capable of arduous duty for prolonged periods of time, without deformation and/or failure of components, in ambient temperatures down to minus forty degrees (- 40◦C) (-40◦F).

1.3 Two stage type snow blower.

1.4 Two (2) 510 mm (20 in.) augers.

1.5 Impeller housing and telescopic truck loading chutes.

1.6 Plastic bushings and rubber absorbers are used on mobile components of the snow blower such as the chute, the engine cowling, battery tray, in order to avoid any metal-to-metal contact and eliminate vibration problems and premature wear of these parts by friction.

2. Capacity

2.1 Up to 3000 tons per hour, depending on snow conditions.

2.2 Casting distance up to 46 m (150 ft).

2.3 Capable of casting from the telescopic chute or the side chute (impeller housing)

3. Dimensions

3.1 The overall width is 2795 mm (110 in.).

3.2 Height with standard telescopic chute retracted is 3442 mm (135.5 in).

3.3 Overall height with standard telescopic chute extended is 3899 mm (153.5 in.)

3.4 Height with tilting optional chute retracted is 3747 mm (147.5 in).

3.5 Overall height with tilting optional chute extended is 4204 mm (165.5 in.)

3.6 Working height is 1321 mm (52 in.)

3.7 Overall length is 2134 mm (84 in.) without steering vanes.

3.8 Overall length is 2279 mm (89 ¾ in.) without the female coupler but with the fixed steering vanes.

3.9 The unit weight with fuel and DEF tanks full, fixed steering vanes but no coupler is approximately 4500 kg (9920 lb).

3.10 Horizontal center of gravity of 952 mm (37 ½ in.)

4. Frame

4.1 Fully welded construction.

4.2 The frame: Triangular design composed of two (2) oversized beams on each side. It allows optimal effort dispersion from the front of the unit to the quick coupler and maintains structure integrity during hard work and in case of impacts.

5. Scraper Blades and Skates

5.1 Two (2) outside and six (6) inside Trimay® skates, for a total of 3935 cm² (610 in²) of wear surface.

5.2 Two (2) reversible scraper blades made of 44W steel, 25.4 mm x 101 mm (1 in. x 4 in.)

5.3 Optional carbide skates and scraper blades.

6. Steering Vanes

6.1 Steering vanes are fixed and bolted.

6.2 Optional: hydraulically controlled steering vanes.

6.3 Optional: 2947 mm (116 in.) cutting width steering vanes.

7. Standard Telescopic Loading Chute

7.1 The loading chute is 406 mm (16 in.) in diameter and consists of two (2) vertical sections, one (1) directional section and one (2) flexible section.

7.2 Hydraulic extension of 457 mm (18 in.) to allow projection at an adjustable height from 3442 to 3899 mm (135.5 to 153.5 in.).

7.3 The chute is located to the left of the impeller and has the ability to cast snow on either side of the unit.

7.4 A rigid rotation system utilizes two (2) different materials, steel and UHMW thermoplastic, to prevent friction and wear.

7.5 Flexible and directional sections are fabricated from 5 to 6.35 mm (3/16 to ¼ in.) thick QT400 steel.

7.6 Flexible section rotates with the use of one (1) hydraulic cylinder controlling the projection distance from 1 to 16 m (3 to 50 ft)*. *Up to 46 m (150 ft) from side casting through the impeller housing.

7.7 Hydraulic rotation is 300°.

7.8 Rotating with hydraulic motor and gear.

7.9 Snow blower tilt indicator on the chute. (Not available on tilting chute option).

OPTION

7.10 Hydraulic tilting chute. Chute tilts by an hydraulic system at 70 degrees towards the rear of the unit to increase visibility while driving and facilitate unclogging. It has a self-adjusting locking system to ensure safe operation. It inclines to position without surpassing the width or the length of the snow blower and without increasing the load on the loader's front axles. The snow blower is able to side cast when the chute is in the inclined position.

8. Impeller & Impeller Casing

8.1 The impeller's nominal diameter is 940 mm (37 in.) and consists of five (5) bolted on and concaved impeller blades that are fabricated of 6 mm (¼ in.) CHT100 steel.

8.2 Unrestricted impeller casing intake.

- The intake diameter is 972 mm (38 ¼ in.)
- Impeller casing internal diameter is 990 mm (39 in.)

8.3 The impeller casing is made of 6 mm (¼ in.) QT400 steel.

8.4 The rotation of the impeller casing is hydraulically operated by a worm gear system which rotates to a total of 145°, enabling to cast to the right and to the left side without any manual adjustments.

8.5 Impeller casing depth is 349 mm (13 ¾ in.)

9. Augers

9.1 Two (2) interchangeable full flight augers of 510 mm (20 in.) diameter. Augers are welded in one (1) piece.

9.2 The augers are fabricated from 6 mm (¼ in.) CHT100 steel, with a continuous weld on a 114 mm (4 ½ in.) OD tube x 13 mm (½ in.) wall.

9.3 A rubber deflector is bolted onto the blower frame, over the top auger.

9.4 Option: Bolted ice breakers.

10. Engine

10.1 Caterpillar® C7.1 Tier 4F Diesel engine, 225 kW (300 hp) @ 2200 rpm, turbocharged and after cooled. Engine is approved and audited by Caterpillar on the application.

10.2 Number of cylinders : 6.

10.3 Alternator: 100 Amps.

10.4 Radiator is located on the right side. This reduces the number of mechanical gears, gearboxes, and related maintenance. It will also increase torque and horsepower while reducing fuel consumption.

10.5 Two (2) stage dry type air filters with clogging indicator (easy assembly).

10.6 Engine block heater of 1000 W.

10.7 Maximum engine torque: 1274 Nm (940 lb-ft) @ 1400 rpm.

OPTION

10.8 Flexxair fan. The Flexxair is a smart system which controls the blade pitch to provide only the required airflow to cool the engine, consuming 75% less energy than a standard fan. With precise electronic controls, the system continuously and automatically adjusts the blades pitch to satisfy the engine needs. All the fan controls are seamlessly integrated with the engine and snow blower controls. The system keeps the radiator clean, maximizes the engine performance, expand the engine lifespan, and reduces the fuel consumption (average 5 % reduction).

11. Fuel

11.1 300 litres (79 gallons) steel fuel tank with mechanical gauge allowing for up to eight (8) hour use (depending on snow conditions).

11.2 Primary, water separator, Diesel filter with replaceable element.

11.3 Secondary Diesel filter with replaceable element.

11.4 Injection system with electronic control.

12. Electrical System

12.1 12-Volt starter.

12.2 Two (2) batteries type 31 - 2250 CCA, maintenance free.

12.3 Low oil pressure, high coolant temperature, high intake air temperature, and high fuel pressure shutdown system.

12.4 Low coolant level shutdown system is optional.

12.5 All electrical components are in a weatherproof box.

12.6 All welds are covered by shrink tube. Terminals are welded. Circuit protection with breakers.

12.7 All wire cables type GXL are marked every 152 mm (6 in.)

12.8 5 m (17 ft) weatherproof quick disconnect cable joins the control panel in the loader cab to the snow blower unit.

12.9 Seven (7) wire cable between loader and snow blower.

12.10 Relays and circuit breakers are identified with stickers.

13. Hydraulic System

13.1 Six (6) US GPM (23 litres/min.) hydraulic pump, directly mounted on engine auxiliary drive.

13.2 Mono-block type electro hydraulic valves.

13.3 Hydraulic hoses are SAE 100R2 type.

13.4 Ten (10) microns oil filters on return line.

13.5 9 litres (2.4 gallons) hydraulic oil tank.

14. Engine Cowling

14.1 Steel fabrication with aluminum for opening section.

14.2 Opening up with two (2) gas cylinders allowing easy access to the radiator.

14.3 Height from the ground is 1863 mm (73 3/8 in.).

15. Clutch

15.1 Hydraulic Twin Disc clutch system.

15.2 A hydraulic cylinder with cab control actuates the clutch. The hydraulic movement is controlled by an electronic circuit to ensure that the operator is not able to engage the clutch inappropriately. During operation, if the cylinder is not in the proper position, the system disengages the clutch and advises the operator through visual and audible warning alarms as well as a textual alarm.

15.3 An angular position sensor is installed directly on the clutch disc. This angular sensor prevents the clutch engagement when the engine rpm is not at idle.

15.4 The system also prevents engine start-up when the clutch is engaged.

15.5 The clutch system is equipped with a lever, allowing emergency manual engagement in the event of a clutch failure.

16. Driveline

16.1 The driveline is composed with a minimum of components for a maximum of reliably:

- One only bevel type gearbox
- A belt drive system with **no** oil bath
- Two (2) drive shafts series 1550 providing power to the augers and impeller.

16.2 Primary and secondary drive belts are Gates Poly chain GT Carbon, 14 MGT, 68 mm.

16.3 Belt tension adjustment with one (1) eccentric and one (1) linear tensioner.

16.4 Two (2) sets of shear bolts protecting the impeller and augers.

- The first set of shear bolts is located on the driveshaft, between the power unit and the belt drive.

- The second set of shear bolts is located on the driveshaft, between the impeller gearbox and the belt drive.

16.5 Shear bolts located in easily accessible locations through swing doors.

17. Control System

STANDARD

17.1 Heavy duty control and display system PLUS +1 from SAUER DANFOSS using a multiplexing communication system.

17.2 High resolution greyscale LCD screen, 2 in. x 4½ in.

17.3 Four (4) button CANBUS joystick and ignition key switch.

17.4 Two-page display of the following information: engine revolution (rpm), engine oil pressure (psi), engine coolant temperature (°F), system voltage (V), engine load factor, fuel level, engine hour meter, engine alarm lights, clutch engagement light, work lights state, optional chute lights state and detailed textual description of errors.

17.5 Maintenance log and record display.

17.6 English and French display.

OPTIONS

17.7 One (1) 7" high resolution TFT display. 18-bit colour.

17.8 Display and control of the lights' condition with the LCD screen (optional equipment).

17.9 Miniature joystick for loaders with limited cabin space.

17.10 Wireless remote control system. 12 volt system comprised of (2) two wireless transceiver modules which replace all cables between the snow blower and the loader cabin. The screen is installed in the cabin besides the joystick allowing the operator to monitor every operation such as: engine start-up, emergency shut off, hydraulic functions, engine commands and information from ***INSIDE*** the cabin away from weather and work hazards. A safety switch is included to switch off the system when unit is not in use.

17.11 Function on the screen to deactivate the impeller casing rotation in order to avoid accidental side casting (from the impeller casing chute) in residential areas.

CONTROL FUNCTIONS

17.12 Screen function for clutch engagement and disengagement.

17.13 Joystick functions for chute deflector and rotation.

17.14 Joystick functions for variable engine throttle control.

17.15 Joystick function for impeller casing rotation.

17.16 Joystick function for chute extension.

17.17 Joystick function for steering vanes.

17.18 Joystick sensibility configurable on the LCD screen

17.19 Clutch angles programming protected by passwords.

17.20 Stored engine code readings accessible directly on the LCD display.

17.21 Joystick manual on LCD screen.

17.22 An emergency stop on the blower and an emergency stop in the cabin.

LIGHTS AND INDICATORS

17.23 Hour meter.

17.24 Voltmeter and oil pressure gauge.

17.25 Engine coolant temperature gauge.

17.26 Fuel level gauge.

17.27 Stop and diagnostic engine lights.

17.28 Warning light and audible alarm for clutch malfunction.

17.29 Visual and audible alarm for air intake overheating, cooling liquid temperature, low oil pressure, engine stoppage, low system charge, and clutch errors.

17.30 Working and chute light indicator. Lights are offered in option.

17.31 Visual alarm for low fuel level, check engine, activated heating elements and maintenance due.

18. Paint

18.1 All metal surfaces are properly prepared for painting to ensure removal of any/all surface rust, welding slag, soot, dirt, grease or wax.

18.2 Two (2) component epoxy primer of 2-3 mil thickness.

18.3 Two (2) component polyurethane paint (manufacturer's standard yellow) of 3-4 mil thickness.

19. Manuals

19.1 One (1) parts catalogue and one (1) operation and maintenance manual are supplied with the snow blower (on CD). The electrical diagram is included in the parts catalogue.

20. Training (optional)

20.1 RPM Tech can provide training for your teams, on site, for a period of at least 6 hours. The snow blower unit training for the operators will include mechanical general maintenance, as well as methods of operation.

21. Warranty and After-Sales Service

21.1 The driveline is covered by two a (2) years warranty, parts and labor.

21.2 The snow blower is covered by a one (1) year or 1500-hour warranty, including parts and labour. To this end, we can provide documentation outlining the warranty's terms and conditions.

21.3 RPM Tech provides 24 hour service at all times and inventory stock levels are maintained for all parts essential to the normal operation of the snow blower.

22. Other Available Options

22.1 Trimay® steel overlay on chute.

22.2 Trimay® steel overlay on impeller housing.

22.3 Battery heater.

22.4 Oil heater for hydraulic system.

22.5 High hydraulic temperature protection.

22.6 Work lights on the blower.

22.7 Work lights on the chute.

22.8 Low level coolant sensor.

22.9 LED lights.

22.10 Arctic oil (hydraulic, engine, gearbox, and reducer). Constant operation under -25°C/-13°F.

22.11 Welding of customer's attach on the bolted plate.

22.12 Female quick attach complete system (RPM supplies the quick attach).

22.13 Maintenance harness.

22.14 Carbide bottom cutting edge.

22.15 Hydraulic tilting chute system.

22.16 Wireless remote emergency engine shutdown system

22.17 Other options available upon request.