

ORIGINAL INSTRUCTIONS

**Magnum™ 250**  
**Magnum™ 280**  
**Magnum™ 310**  
**Magnum™ 340**  
**Magnum™ 380**  
**Magnum™ 310 Rowtrac™**  
**Magnum™ 340 Rowtrac™**  
**Magnum™ 380 Rowtrac™**  
Tractor  
*PIN ZHRF04001 and above*

## OPERATOR'S MANUAL

**Part number 48158467**

1<sup>st</sup> edition English

September 2017



# Contents

---

**NOTE:** The Operator's Manual consists of two volumes. The first volume contains operating information, the second volume the maintenance and diagnostic information.

## 1 GENERAL INFORMATION

Note to the owner.....	1-1
Engine tampering.....	1-2
Tractor intended use.....	1-3
Electro-magnetic compatibility (EMC).....	1-4
ISOBUS certification.....	1-5
Product identification.....	1-6
Manual storage.....	1-9
Machine orientation.....	1-10
Component identification.....	1-11
Selective Catalytic Reduction (SCR) system.....	1-17

## 2 SAFETY INFORMATION

Safety rules and signal word definitions.....	2-1
Safety rules - General.....	2-2
Safety rules - General maintenance safety.....	2-5
Safety rules - Wheels and tires.....	2-5
Safety rules - Driving on public roads and general transportation safety.....	2-5
Safety rules - Fire and explosion prevention.....	2-6
Safety rules - General battery safety.....	2-6
Safety rules - Hydraulic system safety.....	2-7
Safety rules - Instructional seat safety.....	2-7
Safety rules - Operator presence system.....	2-8
Safety rules - Power Take-Off (PTO).....	2-8
Safety rules - Reflectors and warning lights.....	2-8
Safety rules - Seat belts.....	2-8
Safety rules - Roll Over Protective Structure (ROPS).....	2-9
Safety rules - Cab protection.....	2-11
Safety rules - Air conditioning system.....	2-12
Safety rules - Personal Protective Equipment (PPE).....	2-12
Safety rules - Do Not Operate tag.....	2-12
Safety rules - Hazardous chemicals.....	2-12
Safety rules - Utility safety.....	2-12
Safety rules - Electrical storm safety.....	2-13
Safety rules - Mounting and dismounting.....	2-13
Safety rules - Working at heights.....	2-13
Safety rules - Lifting and overhead loads.....	2-13
Safety rules - Implements, tools and trailers.....	2-14
Safety rules - Roll over and tip over.....	2-14
Proposition 65.....	2-15
Ecology and the environment.....	2-16
Safety signs.....	2-17
Selective Catalytic Reduction (SCR) exhaust treatment - Safety signs.....	2-28

---

Informational signs .....	2-30
---------------------------	------

### 3 CONTROLS AND INSTRUMENTS

#### ACCESS TO OPERATOR'S PLATFORM

Tractor access .....	3-1
Lower step .....	3-3

#### OPERATOR'S SEAT

Control identification .....	3-4
------------------------------	-----

#### INSTRUCTOR'S SEAT

Overview .....	3-8
----------------	-----

#### FORWARD CONTROLS

Steering column .....	3-9
Front console .....	3-12
Pedal controls .....	3-14

#### LEFT-HAND SIDE CONTROLS

Pneumatic trailer brake .....	3-16
-------------------------------	------

#### RIGHT-HAND SIDE CONTROLS

Armrest console .....	3-17
Multi function handle .....	3-18
Minimum/maximum RPM throttles .....	3-23
Control panel .....	3-24
Remote valve controls .....	3-34
Joystick .....	3-35
Armrest compartment .....	3-37
Adjusting the armrest console .....	3-39

#### REARWARD CONTROLS

Fender console .....	3-40
Automatic temperature controls .....	3-44
Automatic temperature control system .....	3-47
Ventilation .....	3-48

#### OVERHEAD CONTROLS

Interior lamps .....	3-50
----------------------	------

#### EXTERIOR CONTROLS

Rear fender .....	3-51
Front hitch .....	3-53

#### INSTRUMENT CLUSTER

Overview .....	3-54
Gauges .....	3-55

---

Status and warning icons .....	3-56
Upper display .....	3-59
Lower display .....	3-63
Keypad .....	3-65
Setup menu .....	3-67
Rear tire radius and track radius charts .....	3-73
Adjust menu .....	3-74
Performance features .....	3-83

## 4 OPERATING INSTRUCTIONS

### COMMISSIONING THE UNIT

Engine - Safety rules .....	4-1
-----------------------------	-----

### STARTING THE UNIT

Normal engine starting .....	4-4
Cold starting aids .....	4-8
Cold temperature operation .....	4-10

### STOPPING THE UNIT

Stopping the engine .....	4-12
---------------------------	------

### MOVING THE UNIT

FULL POWERSHIFT TRANSMISSION .....	4-14
Powershift transmission .....	4-14
Best practices for prolonged transmission life .....	4-15
Inching pedal and throttle .....	4-16
Powershift transmission controls .....	4-17
Upper display - Powershift transmission .....	4-20
Driving the Powershift vehicle .....	4-22
Setting default gears .....	4-26
Automatic Productivity Management (APM) .....	4-28
ECO power mode .....	4-36
CONTINUOUSLY VARIABLE TRANSMISSION (CVT) .....	4-38
Introduction .....	4-38
Continuously Variable Transmission (CVT) brake, pedal and throttle operation .....	4-39
Continuously Variable Transmission (CVT) controls .....	4-45
Upper display .....	4-51
Continuously Variable Transmission (CVT) operation .....	4-53
Eco-Draft or Shuttle mode .....	4-56
Driving the Continuously Variable Transmission (CVT) .....	4-58
Transmission messages .....	4-63
POWERSHIFT AND CVT TRANSMISSIONS .....	4-65
Selective Catalytic Reduction (SCR) system .....	4-65
Engine idling or full catalyst messages .....	4-76
Mechanical Front Drive (MFD) .....	4-77
Differential lock system .....	4-80
Suspended axle .....	4-82
Ride control .....	4-87

---

Engine power boost .....	4-89
Constant engine speed .....	4-90
Suspended cab .....	4-93
Electronic end of row system .....	4-94

## PARKING THE UNIT

Automatic park lock .....	4-100
---------------------------	-------

## 5 TRANSPORT OPERATIONS

### ROAD TRANSPORT

Tractor warning lamps and Slow Moving Vehicle (SMV) symbol .....	5-1
Wide transport marker light .....	5-2
Turn signal lamps .....	5-4
Safe transport speed .....	5-5
Implement warning lamps and Slow Moving Vehicle (SMV) symbol .....	5-6
Safety chain .....	5-7

### SHIPPING TRANSPORT

Securing the tractor for shipping .....	5-8
---	-----

### RECOVERY TRANSPORT

Safety rules .....	5-9
Towing the tractor .....	5-10

## 6 WORKING OPERATIONS

### GENERAL INFORMATION

Overview .....	6-1
----------------	-----

### REAR POWER TAKE-OFF (PTO)

Safety rules .....	6-2
Connecting the Power Take-Off (PTO) .....	6-5
Interchangeable Power Take-Off (PTO) shaft .....	6-6
Rear Power Take-Off (PTO) operation .....	6-12
Power Take-Off (PTO) fender switch operation .....	6-16
Auto Power Take-Off (PTO) operation .....	6-17

### FRONT POWER TAKE-OFF (PTO)

Overview .....	6-20
Front Power Take-Off (PTO) operation .....	6-21

### REAR HITCH

Identification .....	6-24
Link adjustment .....	6-25
Hitch high clearance adjustment .....	6-29
Hydraulic links .....	6-32

---

Sway limiter adjustment .....	6-34
Lower link block adjustment .....	6-35
Mechanical float adjustment .....	6-37
Hitch quick coupler - Category III/IIIN .....	6-38
Hitch quick coupler - Category IVN .....	6-43
Hitch operation .....	6-48
Hitch remote switch operation .....	6-53
Position control operation .....	6-54
Load control operation .....	6-56
Slip control operation .....	6-58
Hitch set point .....	6-60

## FRONT HITCH

Overview .....	6-62
Front hitch operation .....	6-63

## DRAWBARS AND TOWING ATTACHMENTS

Safety rules .....	6-70
Drawbar capacity/position .....	6-71
Adjusting the drawbar .....	6-75

## TRAILER BRAKING SYSTEMS

Safety rules .....	6-77
Trailer brake connections .....	6-78
Air pressure monitoring .....	6-79

## AUXILIARY CONNECTIONS

Auxiliary power and lighting .....	6-80
Cab power connections .....	6-82
Radar connection .....	6-83
Implement ISOBUS connector .....	6-84

## HYDRAULIC REMOTE CONTROL VALVES

Valve couplers and connections .....	6-85
Motor return circuit .....	6-89
Power beyond circuit .....	6-90
Flow capacity .....	6-91
Hydraulic control lock .....	6-93
Operating the controls .....	6-94
Remote valve display screens .....	6-98
Remote hydraulic auto mode .....	6-101
Auto depth control .....	6-104
Joystick operation .....	6-106

## BALLASTING THE TRACTOR

Guidelines .....	6-111
Tire load and inflation charts .....	6-126

---

Weights, cast metal.....	6-148
Wheel slip and power hop performance .....	6-159

## MECHANICAL FRONT DRIVE (MFD) AXLES

Front axle identification.....	6-162
Tire combinations and tread positions.....	6-163
Steering and oscillation stops .....	6-180
Tread and fender settings - Class 4.75 and 5.0 fixed front axles.....	6-182
Tread and fender settings - Class 4.75 and 5.0 saddle suspended front axles ..	6-198
Tread and fender settings - Class 5.0 wide front axles.....	6-215
Front wheel fenders .....	6-218
Front wheel narrow fenders - Class 4.75 and 5.0 fixed and suspended axles ...	6-219
Front wheel wide and extra wide fenders - Class 5.0 fixed and suspended axles	6-224
All front wheel fenders – Class 5.0 wide fixed and suspended axles .....	6-230

## REAR AXLE

Rear wheel installation .....	6-235
Rear wheel tread settings .....	6-239
Dual/triple wheel setup for 508 mm (20 in)/559 mm (22 in) row spacing.....	6-247
Adjustable rear wheel .....	6-254

## REAR TRACKS

Tire load and inflation charts - - Tractors with rear tracks .....	6-256
Maximum front ballast recommendations .....	6-259
Track preconditioning.....	6-260
Factory and field track settings .....	6-262

## 7 MAINTENANCE

### GENERAL INFORMATION

Safety rules.....	7-1
Dealer service and parts .....	7-2
Maintenance guidelines .....	7-2
Opening the hood .....	7-3
Closing the hood .....	7-4
Filling the fuel tank .....	7-5
Draining the Diesel Exhaust Fluid (DEF)/AdBlue® tank.....	7-7
Filling the Diesel Exhaust Fluid (DEF)/AdBlue® tank .....	7-8
Battery disconnect switch .....	7-10
Battery access and service .....	7-11
Tire and rim service.....	7-12
Tractor jacking points.....	7-14
Capacities .....	7-16
Consumables - Engine oil .....	7-18
Consumables - Transmission/hydraulic system fluid .....	7-19
Consumables - Diesel fuel .....	7-20
Consumables - Biodiesel fuels .....	7-21
Consumables - Diesel Exhaust Fluid (DEF)/AdBlue® .....	7-23

---

Consumables - Organic Acid Technology (OAT) coolant .....	7-25
Maintenance chart notes .....	7-27
Maintenance summary decal .....	7-28

## Maintenance planning

Maintenance chart .....	7-29
-------------------------	------

## At warning message display

Air filter service icon/message* .....	7-31
Water in fuel message .....	7-34
Transmission oil filter switch .....	7-36
Hydraulic oil filter switch .....	7-39

## First 10 to 50 hours

Wheel bolt torque .....	7-42
Weight bolt torque .....	7-43
Differential and planetary oil .....	7-44

## Every 10 hours or daily

Engine oil level .....	7-45
Transmission oil level .....	7-46
Engine coolant level .....	7-47
Air reservoir .....	7-47
Rear hitch and front axle .....	7-47

## Every 50 hours or weekly

Engine auxiliary fuel filter .....	7-48
------------------------------------	------

## First 100 hours

Powershift transmission clutch calibration .....	7-50
--	------

## Every 100 hours

Front hitch .....	7-56
Front Power Take-Off (PTO) drive shaft .....	7-58
Input shaft for the front Power Take-Off (PTO) dropbox .....	7-59

## Every 200 hours

Track alignment .....	7-61
-----------------------	------

## Every 300 hours

Battery water level (Note B) .....	7-62
Engine air intake and exhaust hoses .....	7-64
Engine coolant level - deaeration tank .....	7-66
Weight bolt torque .....	7-67
Front axle (Note A) .....	7-68

---



Rear hitch (Note A) .....	7-70
Fuel tank .....	7-72
Differential and planetary oil level (Note B) .....	7-73
Transmission oil pressure .....	7-74
Front Power Take-Off (PTO) oil level .....	7-75

## Every 400 hours

Cab air filter* .....	7-76
-----------------------	------

## Every 600 hours

Engine oil and filter* .....	7-79
Engine coolant antifreeze protection .....	7-82
Engine coolant hoses and clamps .....	7-82
Engine fuel filter* .....	7-84
Engine auxiliary fuel filter* .....	7-87
Fuel system bleeding .....	7-89
Changeable Power Take-Off (PTO) internal splines .....	7-90
Diesel Exhaust Fluid (DEF)/AdBlue® in-line filter .....	7-91
Engine air precleaner* .....	7-92

## Every 1000 hours or annually

Pneumatic brake system dryer .....	7-93
Powershift transmission clutch calibration .....	7-94
Front Power Take-Off (PTO) oil and filter* .....	7-100
Front Power Take-Off (PTO) dropbox oil .....	7-102
Fuel tank breather .....	7-103

## Every 1200 hours or annually

Differential and planetary oil .....	7-104
Engine air filters* .....	7-108

## Every 1500 hours

Transmission oil .....	7-111
Regulated system oil filter* .....	7-114
Main transmission oil filter* .....	7-115
Idler/roller wheel oil .....	7-116
Engine crankcase filter* .....	7-117

## Every 3000 hours

Engine valve adjustment (Note C) .....	7-121
--	-------

## Every 3600 hours

Diesel Exhaust Fluid (DEF)/AdBlue® supply module filter .....	7-122
---	-------

---

## Every 4000 hours or every four years

Engine coolant.....	7-125
---------------------	-------

## As required

Vehicle fire prevention.....	7-128
Track inspection and bolt torque.....	7-129
Track rotation.....	7-129
Track drive wheel and idler bolt torque.....	7-129
Track tension release.....	7-130
Track alignment.....	7-132
Cab air filter*.....	7-134
Grille screen and radiator area.....	7-137
Transmission clutch and accumulator.....	7-138
Tire pressure.....	7-139
Fan belt.....	7-140
Diesel Exhaust Fluid (DEF)/AdBlue® tank filler screen.....	7-146
Diesel Exhaust Fluid (DEF)/AdBlue® in tank filter.....	7-148
Remote valve collection bottle.....	7-149
Remote valve couplers.....	7-150
Cab fabric and carpet.....	7-151
Seat belt.....	7-151

## Fuse and relay locations

Electrical component location.....	7-152
Lamps and bulbs.....	7-157

## STORAGE

Preparing for storage.....	7-158
Removal from storage.....	7-159

## ELECTRICAL SYSTEM

Radio or audio system.....	7-160
Battery removal and installation.....	7-161
Auxiliary battery connections.....	7-163
Headlight.....	7-164
LED work lights.....	7-165
Fender tail light and warning light.....	7-165
Roof warning light.....	7-166
Work light.....	7-167
High intensity work light.....	7-168
Wide transport marker light.....	7-169
Rotating beacon light.....	7-170
Interior light.....	7-171

## 8 TROUBLESHOOTING

### ALARM(S)

Display warnings overview.....	8-1
Display warnings - Level 1.....	8-2

---

Display warnings - Level 2 .....	8-4
Display warnings - Level 3 .....	8-7
Display warnings - Level 4 .....	8-9

## SYMPTOM(S)

Engine symptoms .....	8-11
Transmission symptoms.....	8-13
Hydraulic symptoms.....	8-14
Hitch symptoms .....	8-15
Brake symptoms.....	8-16
Cab environment symptoms.....	8-16
Electrical power system symptoms.....	8-17

## 9 SPECIFICATIONS

Engine specifications .....	9-1
Power train specifications .....	9-2
Operating speeds - Wheeled tractors .....	9-6
Operating speeds - Rowtrac™ tractors .....	9-7
Maximum angle (tilt) of operation.....	9-11
Vehicle dimensions and shipping weight - Wheeled tractors.....	9-12
Vehicle dimensions and shipping weight - Rowtrac™ tractors .....	9-18
Maximum operating weight.....	9-21

## 10 ACCESSORIES

Farming system displays .....	10-1
Rear view mirrors.....	10-2
Chemical tank mounting .....	10-4
Loader connection and operation .....	10-6
General accessories.....	10-7

---

# 1 - GENERAL INFORMATION

## Note to the owner

This manual contains important information about the safe operation, adjustment and routine maintenance of your **Magnum™** or **Magnum™ Rowtrac™** series tractor. The manual is divided into 10 chapters as outlined in the table of contents. Refer to the index at the end of this manual for locating specific items about your tractor.

Do NOT operate or permit anyone to operate or service this machine until you or the other persons have read this manual. Use only trained operators who have demonstrated the ability to operate and service this machine correctly and safely.

All persons who will be operating this machine shall possess a valid local vehicle operating permit and/or other applicable local age work permits.

### Tractors equipped with rear tracks

On **Rowtrac™** models, refer to the information starting on page **Operating speeds - Rowtrac™ tractors** for transport speed weight limitations.

This Operator's Manual is to be stored in the manual compartment behind the operator's seat in the vehicle. Make sure this manual is in good condition. Contact your dealer to obtain additional manuals.

Your CASE IH dealer will instruct you in the general operation of your new equipment. Your dealer's staff of factory-trained service technicians will be glad to answer any questions that may arise regarding the operation of your machine. They will also provide any after-sales service you may need, and genuine CASE IH parts, your guarantee of quality and match.

CASE IH **Max Service<sup>SM</sup>** is also available. Call 1-877-4CASEIH (1-877-422-7344) or email maxservice.na@cnh.com.

See Operator's Manual for Transport Speed Weight Guidelines

kph/mph


Kg/lbs

code 00000000A

RAIL14TR03870BA 1

## Engine tampering

The fuel system, exhaust after-treatment system, and engine on your machine are designed and built to government emissions standards. Tampering by dealers, customers, operators, and users is strictly prohibited by law.

Failure to comply could result in government fines, rework charges, invalid warranty, legal action, and possible con-

fiscation of the machine until rework to original condition is completed. Engine service and/or repairs must be done by a certified technician only!

**Buy Now**



Our support email:

[ebooklibonline@outlook.com](mailto:ebooklibonline@outlook.com)