



## TANKERS

### OPERATING & SAFETY INSTRUCTIONS

FOR SPARE PARTS GO TO  
[WWW.MARSHALL-TRAILERS.CO.UK](http://WWW.MARSHALL-TRAILERS.CO.UK)

FOR MODELS:  
ST1200, ST1400, ST1600, ST1800,  
ST2000, ST2300, ST2550, ST3000



**CHARLES J. MARSHALL (ABERDEEN) LTD**  
**CHAPEL WORKS, BUCKSBURN, ABERDEEN, AB21 9TL.**

Telephone: 01224 722777

Email: [charles@marshall-trailers.co.uk](mailto:charles@marshall-trailers.co.uk)

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## EC DECLARATION OF CONFORMITY

WE: CHARLES J. MARSHALL (ABERDEEN) LTD

CHAPEL WORKS, BUCKSBURN, ABERDEEN, SCOTLAND, AB21 9TL.

DECLARE THAT THE PRODUCT:

MAKE: CHARLES J. MARSHALL (ABERDEEN) LTD

TYPE: MARSHALL TANKER

MODEL: \_\_\_\_\_

SERIAL NO: \_\_\_\_\_

CONFORMS TO THE ESSENTIAL HEALTH & SAFETY REQUIREMENTS OF 98/37/EC MACHINERY DIRECTIVE AS AMENDED BY 2006/42/EC DIRECTIVE.

PLACE OF ISSUE – CHAPEL WORKS, BUCKSBURN, ABERDEEN, SCOTLAND, AB21 9TL.

NAME & TITLE OF AUTHORISED PERSON:

A handwritten signature in black ink, appearing to read "Charles R. Marshall".

CHARLES R. MARSHALL  
MANAGING DIRECTOR

DATE: \_\_\_\_\_

WE ENCLOSE OUR INSTRUCTIONS FOR THE SAFE OPERATION OF THIS MACHINE, THE WORKING OF WHICH IS FULLY UNDERSTOOD BY THE UNDERSIGNED.

CUSTOMER'S SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

## SAFETY INSTRUCTIONS

### Important Safety advice!

1. STOP
2. THINK
3. CALL 01224 722777

**Safety First:** Please read and fully understand the contents of this instruction manual, if you are in any doubt whatsoever of the safe operation of this machine, please contact Charles J. Marshall (Aberdeen) Ltd on Tel. 01224 722777.

1. Guards - Ensure all guards are present and securely fastened in place.
2. Maintenance - Ensure the machine PTO and tractor is completely stopped and secure prior to carrying out any maintenance.
3. PTO Shaft - Safety is important, if you are in any doubt of how to fit the PTO shaft, please contact our service department.
4. Ensure that the pump is in the proper position for vacuum or pressure.
5. Ensure that the safety pressure relief valve is set and working correctly by lifting the top round part, the pressure gauge should read no more than one bar – adjustment is required if the pressure is higher than this.
6. Always apply the parking brake when the Tanker is to be left unhitched from the tractor.
7. Hydraulic Valve – Always check that the valve is open when pump is creating pressure or vacuum.
8. Before undoing any hatch, ensure the tanker is depressurised completely.
9. Before entering a slurry tanker, make sure it has been properly ventilated, the pump is running and that the person entering has a rope attached, which should be held by two people. Never close the entry hatch with someone inside.
10. As some gases released by agitated slurry may be flammable, never smoke or hold up naked lights in the vicinity of the tanker.
11. Extreme care is required if discharging slurry near power lines.

## OPERATING INSTRUCTIONS

All Pumps fitted to Marshall Tankers, have unfortunately, to be subject to the Manufacturer's warranty terms which are that if a Pump has worked successfully for more than three hours it cannot be regarded as being of faulty manufacture.

YOUR MARSHALL TANKER HAS BEEN DESIGNED TO GIVE YOU LONG AND RELIABLE SERVICE. THIS CAN BE ENSURED BY FOLLOWING THE INSTRUCTIONS BELOW.

### General Operating Instructions

Operating the tanker – Couple up the 6" hose either on the side or at the rear to the bauer coupling ensuring that the connection is airtight. Open the appropriate valve, place the vacuum pump in the vacuum position then start the PTO (at low engine speeds). Operators of tankers fitted with a hydraulic drive pump should ensure both hydraulic hoses are connected to the tractor's spool valves before engaging. Watch the gauge on the front and take note of its reading as the hose becomes full, at this point increasing vacuum is pointless as this is the point when the smallest amount of vacuum is lifting the liquid. By controlling the PTO speed you will be able to maintain this situation. (This greatly reduces the risk of over filling and reduces the amount of froth created during loading). When liquid becomes visible in the sight glass immediately shut the appropriate valve, shut down the engine revs and when the engine is idling shut off the pump. Uncouple the hose and change the pump position to pressure. When emptying the tanker allow the pressure to build up in the tanker then open the back rear valve – never turn with the PTO running and always start and stop the pump at low engine revs.

### Hertell Pump Operating Instructions

Must be used in the 540 RPM PTO mode, the PTO speed must not exceed 350rpm. There must be one oil drop, every one to two seconds, visible in the oiler. Remember this is **TOTAL** oil loss, so **MUST** be checked and topped up daily to keep the oil above the mark on the dip-stick.

Check the oil level in the front gear box housing regularly.

Due to the weight and speed at which the main pump rotor rotates it is vital that the input PTO speed is low when the pump is started or stopped.

To help prolong the life of the pump it is advisable, after every 25 working hours, to pass diesel through it. This can be done by placing the pump in the pressure position and holding the container of diesel up to the exhaust on the pump the diesel will be sucked up through the pump and will wash out the entire pump. **KEEP THE PUMP TURNING** for around 30 seconds then change the pump from pressure to vacuum – note the foul diesel will pass out through the exhaust so some means of catching this is advisable to enable you to dispose of this correctly. Continue the pump running for around 30 seconds this greatly prolongs not only the pumps life but coats the top shut off valve.

This procedure **MUST** only be completed when the pump is cold and **DO NOT STOP THE PUMP UNTIL** the diesel has dispersed fully.

### **Bationie Pump Operating Instructions**

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This procedure **MUST** only be completed when the pump is cold and **DO NOT STOP THE PUMP UNTIL** the diesel has dispersed fully.

**ALWAYS DISENGAGE PTO SHAFT WHEN TURNING.**

**NEVER OVERFILL TANK. TO AVOID THIS, CLOSE THE GATE VALVE WHENEVER SLURRY IS VISIBLE IN THE SIGHT GLASS. THE OVERFLOW VALVE IS THERE ONLY FOR SAFETY.**

### **MAINTENANCE INSTRUCTIONS**

1. Hubs / Bearings must be greased regularly; we recommend they are checked after the first fourteen days work, then six monthly thereafter.
2. Tyre pressure should be checked regularly (See page 8).
3. Wheel nuts should be checked when the machine is new, then after operating for one hour, then one day and weekly thereafter. The same procedure applies if nuts have been removed and replaced.
4. Check the tow hitch for wear and replace accordingly.
5. Lights should be kept clean and if not in use for some length of time, coating with some form of oil spray is recommended.
6. Regularly check the top shut-off valve for damage or corrosion.

7. Keep Hydraulic 6" Valve Clean - This can be a cause of over filling problems as a poorly adjusted unclean valve can allow air to pass when the tanker is being loaded causing vast amount of unwanted froth.
8. Regularly check the slurry trap valve on the top of the tanker is moving freely and there are no obstructions stopping its operation.

**BRAKE ADJUSTMENT:** Always adjust brakes with the tanker on a completely level surface.

This can be done by loosening the nut behind the clevis, then rotating the piston, adjustment will appear from the ram. Remember to tighten the locknut when completed.



### Maintenance Instructions - Oil

Check the oil levels daily.

1. The front part of the pump is a gearbox which should be filled to the top of the small sight glass, on the side, with SAE 90 (EP90/ISOVG220) oil.
2. The other oil is checked by removing the dip-stick on top of the pump which should always be kept above the mark. This is a **TOTAL DISCHARGE OF OIL SO MUST BE TOPPED UP DAILY** with SAE 20 (Straight20/ISOVG68) or similar (Do not use milking parlour oil).

The oil drip feed has to be set at one drop every two seconds when the pump is idling.

**ENSURE THE PUMP IS PROPERLY LUBRICATED**

## FITTING INSTRUCTIONS TO FIT ACTIVATOR TO GATEVALVE

1. Remove gland nut from the top of the gate valve, leaving the gland packing seals in place.
2. Remove dome part of gate valve from base by unscrewing the six allen bolts.

3. Remove brass paddle and shaft assembly from the base of the gate valve, then remove the paddle from the shaft.
4. De-tension activator spring completely by turning the top threaded rod in an anti-clockwise motion.
5. When the tension is released totally, screw activator tightly into the domed top of the gate valve, then using position 3 (locking nut) lock into position.
6. Replace brass paddle onto the bottom stainless steel shaft of the activator.
7. Replace dome and activator assembly to the base of the gate valve making sure that the gate valve gasket is in place and tighten the allen bolts securely.
8. Re-tension the spring by turning the top threaded rod in a clockwise fashion, until the paddle is seated firmly into the base of the gate valve.
9. Connect activator port to the tractor hydraulic system using 3/8" r1 hose.

## GATE VALVE AND ACTIVATOR MAINTENANCE

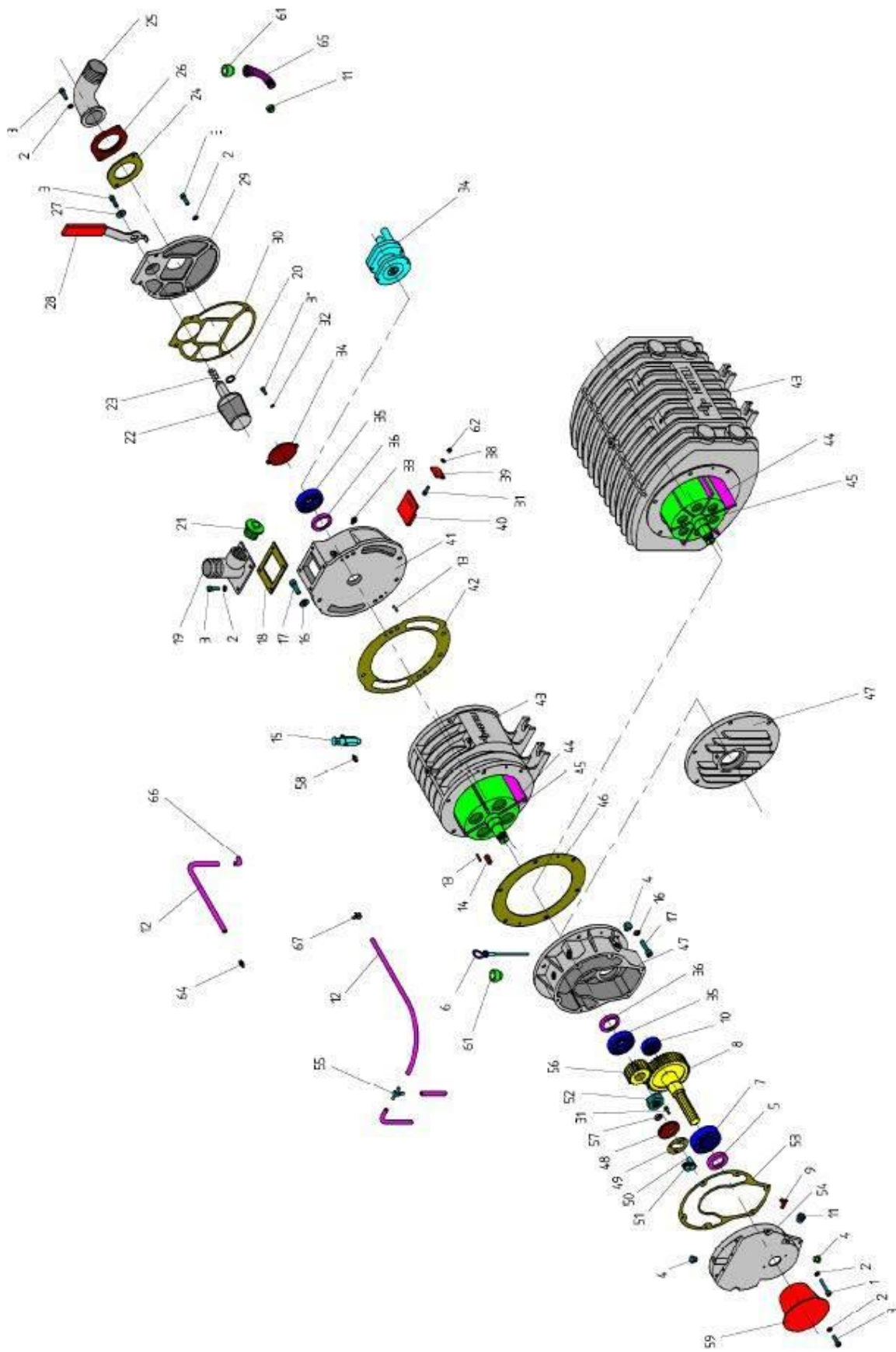
After frequent use the tension applied to the activator springs may loosen which will cause the gate valve to not close properly. This can be rectified by re-tensioning the springs accordingly. Another problem which may arise with your gate valve/activator assembly is when the gate valve does not fully open. This is caused by the build up of waste material being trapped and compressed in the dome of the gate valve. This can be prevented by removing the activator and top dome unit from the base of the gate valve and cleaning out the dome.

***N.B.** Remember to slacken off all the tension from the activator spring when removing the dome/activator unit, and then re-tensioning it when the unit has been bolted back together again after cleaning. This will prolong the life of the activator as well as the gate valve.*

### Pressure valve adjustment

To adjust the pressure simply slacken the locking nut on the body of the valve then screw the valve clockwise to increase pressure anticlockwise to decrease (NB maximum pressure should be kept at 1barr / 15PSI).

**Any other problems arising, please contact Charles J. Marshall (Aberdeen) Ltd service department.**





|                | <b>Part Number</b> |   |
|----------------|--------------------|---|
|                |                    | <b><i>Complete Pump</i></b>             |
| Hertell KD8000 | 069/03-8000        | KD-8000ltr Vacuum Pump c/w Fixing Plate |
|                |                    | <b><i>Parts for Pump</i></b>            |
| Hertell KD8000 | 069/04-8001        | No.1 Screw                              |
| Hertell KD8000 | 069/04-8002        | No.2 Washer                             |
| Hertell KD8000 | 069/04-8003        | No.3 Screw                              |
| Hertell KD8000 | 069/04-8004        | No.4 Plug                               |
| Hertell KD8000 | 069/04-8005        | No.5 Seal                               |
| Hertell KD8000 | 069/04-8006        | No.6 Oil Level Indicator                |
| Hertell KD8000 | 069/04-8007        | No.7 Bearing                            |
| Hertell KD8000 | 069/04-8008        | No.8 Attack gear 55 teeth               |
| Hertell KD8000 | 069/04-8009        | No.9 Nipple 90                          |
| Hertell KD8000 | 069/04-8010        | No.10 Bearing                           |
| Hertell KD8000 | 069/04-8011        | No.11 Oil Sight Glass                   |
| Hertell KD8000 | 069/04-8012        | No.12 Oil Tube                          |
| Hertell KD8000 | 069/04-8013        | No.13 Elastic Pin                       |
| Hertell KD8000 | 069/04-8014        | No.14 Key                               |
| Hertell KD8000 | 069/04-8015        | No.15 Drop Feeder                       |
| Hertell KD8000 | 069/04-8016        | No.16 Washer                            |
| Hertell KD8000 | 069/04-8017        | No.17 Screw                             |
| Hertell KD8000 | 069/04-8018        | No.18 Gasket                            |
| Hertell KD8000 | 069/04-8019        | No.19 Outlet                            |
| Hertell KD8000 | 069/04-8020        | No.20 O-Ring                            |
| Hertell KD8000 | 069/04-8021        | No.21 Plug                              |
| Hertell KD8000 | 069/04-8022        | No.22 Conic Distributor                 |
| Hertell KD8000 | 069/04-8023        | No.23 Spring                            |
| Hertell KD8000 | 069/04-8024        | No.24 Outlet Gasket                     |
| Hertell KD8000 | 069/04-8025        | No.25 Outlet                            |
| Hertell KD8000 | 069/04-8026        | No.26 Flange                            |
| Hertell KD8000 | 069/04-8027        | No.27 Washer                            |
| Hertell KD8000 | 069/04-8028        | No.28 Handle                            |
| Hertell KD8000 | 069/04-8029        | No.29 Distributor Cover                 |
| Hertell KD8000 | 069/04-8030        | No.30 Gasket                            |
| Hertell KD8000 | 069/04-8031        | No.31 Screw                             |
| Hertell KD8000 | 069/04-8032        | No.32 Washer                            |
| Hertell KD8000 | 069/04-8033        | No.33 Lubrication Nipple                |
| Hertell KD8000 | 069/04-8034        | No.34 Bearing Cover                     |
| Hertell KD8000 | 069/04-8035        | No.35 Bearing                           |
| Hertell KD8000 | 069/04-8036        | No.36 Seal                              |
| Hertell KD8000 | 069/04-8037        | No.37 Plug                              |
| Hertell KD8000 | 069/04-8038        | No.38 Copper Washer                     |
| Hertell KD8000 | 069/04-8039        | No.39 Hinge                             |
| Hertell KD8000 | 069/04-8040        | No.40 Plug                              |
| Hertell KD8000 | 069/04-8041        | No.41 Distributor                       |
| Hertell KD8000 | 069/04-8042        | No.42 Gasket                            |
| Hertell KD8000 | 069/04-8043        | No.43 Body                              |
| Hertell KD8000 | 069/04-8044        | No.44 Vane                              |
| Hertell KD8000 | 069/04-8045        | No.45 Rotor                             |
| Hertell KD8000 | 069/04-8046        | No.46 Gasket                            |
| Hertell KD8000 | 069/04-8047        | No.47 Gearbox                           |
| Hertell KD8000 | 069/04-8048        | No.48 Oil Pump                          |
| Hertell KD8000 | 069/04-8049        | No.49 Oil Pump Gasket                   |
| Hertell KD8000 | 069/04-8050        | No.50 Oil Pump Attack Gear              |
| Hertell KD8000 | 069/04-8051        | No.51 Oil Pump Gear                     |
| Hertell KD8000 | 069/04-8052        | No.52 Lock Nut                          |
| Hertell KD8000 | 069/04-8053        | No.53 Gasket                            |
| Hertell KD8000 | 069/04-8054        | No.54 Gearbox Cover                     |
| Hertell KD8000 | 069/04-8055        | No.55 T-Connection                      |
| Hertell KD8000 | 069/04-8056        | No.56 Small Gear 28 teeth               |
| Hertell KD8000 | 069/04-8057        | No.57 Seal                              |
| Hertell KD8000 | 069/04-8058        | No.58 Pipette                           |
| Hertell KD8000 | 069/04-8059        | No.59 PTO Guard                         |
| Hertell KD8000 | 069/04-8060        | No.60 Rotor Plug                        |
| Hertell KD8000 | 069/04-8061        | No.61 1/2" plug                         |
| Hertell KD8000 | 069/04-8062        | No.62 Nut                               |
| Hertell KD8000 | 069/04-8063        | No.63 PTO Guard Screw                   |
| Hertell KD8000 | 069/04-8064        | No.64 Nipple                            |
| Hertell KD8000 | 069/04-8065        | No.65 Elbow 1/2                         |
| Hertell KD8000 | 069/04-8066        | No.66 Nipple                            |
| Hertell KD8000 | 069/04-8067        | No.67 Bracket                           |

| Part Number   | Size                     | Maximum Weight | Speed   | Max Tyre Pressure |
|---|--------------------------|----------------|---------|-------------------|
| <b>Please note this chart is for reference only each tyre brand can have different ratings.</b> |                          |                |         |                   |
| 083-01-26-12  | 26 x 1200 x 12           | 800kg          | 25km/h  | 20psi             |
| 083-01-100-12   | 10.0/80x12 10ply         | 1000kg         | 30km/h  | 45psi             |
| 083-01-100-15   | 10.0 x 15.3              | 1500kg         | 30km/h  | 52psi             |
| 083-01-115-15   | 11.5 x 15                | 2000kg         | 30km/h  | 52psi             |
| 083-01-125-15   | 12.5 x 15                | 2500kg         | 30km/h  | 60psi             |
| N-A   | 15/70 x 18               | 3200kg         | 40km/h  | 75psi             |
| 083-01-15-22.5  | 15 x 22.5 (385/65R 22.5) | 4500kg         | 80km/h  | 90psi             |
| 083-01-400R-60  | 400R-60x22.5             | 4500kg         | 80km/h  | 90psi             |
| 083-01-1555-17  | 15-55 x 17               | 2120kg         | 40km/h  | 52psi             |
| 083-01-1670-20  | 16/70 x 20               | 3000kg         | 40km/h  | 49psi             |
| 083-01-165-70   | 16.5 x 70 x 18           | 3200kg         | 40km/h  | 54psi             |
| N-A   | 18 x 22.5                | 5800kg         | 80km/h  | 90psi             |
| N-A   | BN2 340/457-1300 x 18    | 2600kg         | 40km/h  | 60psi             |
| N-A   | BN3 1300 x 530 x 533     | 4500kg         | 40km/h  | 53psi             |
| N-A   | BN4 22/70-20             | 4500kg         | 40km/h  | 33psi             |
| 083-01-340-65   | XP27 Radial 340/65R 18   | 2650kg         | 90km/h  | 72psi             |
| 083-01-400-60   | 400-60 x 22.5            | 4000kg         | 40km/h  | 51psi             |
| 083-01-550-45   | 550-45 x 22.5            | 4375kg         | 40km/h  | 41psi             |
| 083-01-560-45   | 560-45 x 22.5            | 4575kg         | 45km/h  | 58psi             |
| 083-01-560-60   | 560-60 x 22.5            | 5595kg         | 50km/h  | 58psi             |
| 083-01-500-60   | 500-60 x 22.5            | 5450kg         | 40km/h  | 41psi             |
| 083-01-550-60   | 550-60 x 22.5            | 5300kg         | 40km/h  | 44psi             |
| 083-01-445-45   | 445-45 X 19.5            | 4500kg         | 100km/h | 100psi            |
| 083-01-335-50   | 355-50 X 22.5            | 4500kg         | 80km/h  | 100psi            |
| 083-01-184-30   | 18.4 x 30 14 pr          | 3550kg         | 40km/h  | 39psi             |
| 083-01-184-34   | 18.4 x 34 14 pr          | 3650kg         | 40km/h  | 36psi             |
| 083-01-231-26   | 23.1 x 26                | 3950kg         | 40km/h  | 36psi             |
| 083-01-281-26   | 28.1 x 26                | 6100kg         | 40km/h  | 33psi             |
| 083-01-305-32   | 30.5 x 32                | 7100kg         | 40km/h  | 39psi             |
| 083-01-750-60   | 750 x 60 x 30.5          | 8500kg         | 40km/h  | 60psi             |

## MARSHALL PRE-DELIVERY INSPECTION CHECK

|                  |                |
|------------------|----------------|
| Dealer Name:     |                |
| Customer's Name: |                |
| Address:         | Post Code:     |
| Model:           | Serial Number: |

### Check

### Completed

Check Tyre Pressure (See chart on page 8)

Tighten Wheel Nuts  
(18mm Stud Diameter = 270Nm / 22mm Stud Diameter = 475Nm)

Grease Hubs

Check External Wheel Bearing  
(Ensure No Side Movement on Wheels)

Check Pump Oil Levels (Gearbox and lubricating)

Check All Securing Bolts

Check Lights (If applicable)

Check For Damaged Paint and Touch Up If Necessary

Check Brake Rams (Extend and return freely)

Valve Ram (Opens and closes freely)

Rams and Hydraulic Hoses Checked For Leaks

Ensure Relevant Paperwork Is Completed and Handed to the Operator

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
**General Overall Condition Satisfactory**

To be returned when completed:  
 Email – [admin@marshall-trailers.co.uk](mailto:admin@marshall-trailers.co.uk)  
 Post – Charles J Marshall (Aberdeen) Ltd  
 Chapel Works, Bucksburn, Aberdeen, AB21 9TL.