Introduction

This operation guide is based on the Pointer body and Dart SLF chassis original equipment fitted at the factory.

For this reason, you may find illustrations and/or certain parts of the text in this handbook which do not correspond exactly to the particular situation on your own vehicle.

The purpose of this operation guide is to provide drivers with information to help them to operate their vehicles safely and efficiently. It is recommended that it is kept with the vehicle.

Care and attention given at the right time will ensure efficient and satisfactory performance. Periodic attention is necessary, and should help to avoid breakdowns. Never run the vehicle in a doubtful condition, always report back to the garage for inspection and attention.

In all communications quote the relevant V.I.N. and engine number. This will ensure prompt attention.

Vehicles manufactured by TransBus International, when delivered, comply with all current Department of Transport Regulations and Codes of Practice appertaining.

Whilst every effort is made to ensure the information given in this handbook is correct at the time of going to print, the TransBus International policy is one of continuous improvement and the right to change specifications and equipment without notice is reserved.

Gross Vehicle Weight and Axle loadings are based upon the maximum seating capacity of the vehicle, as delivered, (including Driver).

TransBus International
Customer Care
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Guildford
Surrey
GU1 1AF
England

Telephone: + 44 (0)1483 571271
Fax: + 44 (0)1483 301696
Introduction

Key to Symbols

Please take note of the following symbols, used throughout this manual which identify any health hazards or instructions to prevent any personal injuries or damage to the vehicle.

⚠️ WARNING
Text with this heading and a shaded background is a reminder of an operation which, if not carried out with due care, could involve the risk of personal injury.

⚠️ CAUTION
Text with this heading and a shaded background is a reminder of an operation which, if not carried out with due care, could involve the risk of damage to material.

NOTE
Text with this heading and a shaded background refers to special methods, features or procedures.

Buyer's Obligations

CAUTION
It is imperative that all maintenance procedures are complied with and records of all work are kept and are available to view.

Operational

- The maximum permitted laden weight is identified on the VIN plate.
- The maximum passenger carrying capacity is identified in the cab area.
- When a defect is identified, it could cause serious problems or deterioration. This must be rectified prior to the vehicle going into service.

NOTE
The failure to comply with these requirements could cause mechanical or structural failure and will invalidate the warranty.

Options

★
Items marked with this sign ★ are fitted as options.
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General Description

The Pointer Body and Dart SLF chassis are available in various body lengths. They are powered by either a 4 or 6 cylinder turbo charged diesel engine driving a single reduction rear axle through a four speed automatic transmission.

The air operated braking system is powered by an engine-driven compressor supplying five reservoirs through an air dryer which also regulates pressure. Service One and Service Two reservoirs each supply a separate system for the front and rear brakes. The park reservoir supplies the spring-applied, air released rear brakes. The Auxiliary reservoirs supply the air suspension and body services such as the doors.

The hydraulic system is powered by an engine driven tandem pump which supplies the steering box and cooling fan.

The front and rear suspension consists of trailing taper leaf springs and a panhard rod supported by air springs and hydraulic dampers.

The 24 volt electrical system is powered by an engine driven alternator and two batteries. The system supplies the usual lighting, warning and indicating systems.

An electronically controlled air system is installed which allows a kneeling system to operate. The kneeling system allows the front suspension air springs to be deflated, to lower the entrance of the vehicle almost to kerb level. The system will not operate if the doors are open, if the handbrake is not on, if the vehicle is moving or if the system air pressure is too low. Conversely, the system will prevent the doors from opening if the vehicle is moving or if raising or lowering process is operating.
Vehicle Identification Plate

<table>
<thead>
<tr>
<th>W.P.O.</th>
<th>52646</th>
</tr>
</thead>
<tbody>
<tr>
<td>VEHICLE TYPE</td>
<td>DART SLF</td>
</tr>
<tr>
<td>ENGINE TYPE</td>
<td>CUMMINS ISBe 135PS</td>
</tr>
<tr>
<td>CAB TYPE</td>
<td>0.49</td>
</tr>
</tbody>
</table>

DENNIS
GUILDFORD, ENGLAND

V.I.N. SFD2B2CR31GW11234

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PLATED WEIGHTS</td>
<td>DESIGN WEIGHTS</td>
<td>PLATED WEIGHTS</td>
</tr>
<tr>
<td>Kg</td>
<td>Kg</td>
<td>Kg</td>
</tr>
<tr>
<td>11500</td>
<td>11500</td>
<td></td>
</tr>
<tr>
<td>4480</td>
<td>4500</td>
<td>8000</td>
</tr>
</tbody>
</table>

Key to Labels

A Type Approval Number
B Vehicle Identification
C Gross Weight
D Train Weight
E Axle 1 Weight
F Axle 2 Weight
G Axle 3 weight

Key to V.I.N. Number

SFD World Manufacturer's Identity
2 Wheelbase
B Engine
2 Transmission
C Air Conditioning
R Hand of Drive
3 Series/mark
1 Build Year
G Build Plant
W Model
1 Frame type
1234 Serial Number

Vehicle details can be identified from the V.I.N. plate; a typical example is shown above.

Please quote the V.I.N. number with any enquiries concerning the vehicle.
<table>
<thead>
<tr>
<th><strong>Vehicle Identification Sheet</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chassis</strong></td>
</tr>
<tr>
<td>V.I.N. No</td>
</tr>
<tr>
<td>Model</td>
</tr>
<tr>
<td>Registration No</td>
</tr>
<tr>
<td>Date into service</td>
</tr>
<tr>
<td>Engine Type</td>
</tr>
<tr>
<td>Engine Number</td>
</tr>
<tr>
<td>Gearbox Type</td>
</tr>
<tr>
<td>Gearbox Number</td>
</tr>
<tr>
<td>Wheel Tyre Size</td>
</tr>
<tr>
<td><strong>Bodywork</strong></td>
</tr>
<tr>
<td>Bodybuilder</td>
</tr>
<tr>
<td>Body Type</td>
</tr>
<tr>
<td>Body Number</td>
</tr>
<tr>
<td><strong>Operator</strong></td>
</tr>
<tr>
<td>Company</td>
</tr>
<tr>
<td>Address</td>
</tr>
<tr>
<td>Telephone Number</td>
</tr>
<tr>
<td>Out of Hours Telephone Number</td>
</tr>
<tr>
<td>Fax Number</td>
</tr>
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</table>
Drive can only be selected when the footbrake is depressed.
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10. Suspension Kneel Buttons .......... Page 28
11. Wheelchair Ramp Controls ★ ...... Page 30
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Drive can only be selected when the footbrake is depressed.
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<thead>
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<th></th>
<th>Instrument Panel</th>
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<tr>
<td>1</td>
<td><strong>Engine Coolant Temperature Gauge</strong>  ★</td>
</tr>
<tr>
<td></td>
<td>Indicates the temperature of the engine coolant.</td>
</tr>
<tr>
<td>2</td>
<td><strong>Fuel Gauge</strong></td>
</tr>
<tr>
<td></td>
<td>Shows fuel content when ignition is at RUN.</td>
</tr>
<tr>
<td>3</td>
<td><strong>Speedometer or Tachograph</strong></td>
</tr>
<tr>
<td>4</td>
<td><strong>Warning Lights</strong></td>
</tr>
<tr>
<td></td>
<td>See Pages 14 to 17.</td>
</tr>
<tr>
<td>5</td>
<td><strong>Air Pressure Gauge 1</strong></td>
</tr>
<tr>
<td></td>
<td>Shows the pressure in the front brakes air reservoir.</td>
</tr>
<tr>
<td>6</td>
<td><strong>Air Pressure Gauge 2</strong></td>
</tr>
<tr>
<td></td>
<td>Shows the pressure in the rear brakes air reservoir.</td>
</tr>
<tr>
<td>7</td>
<td><strong>Vehicle Lift Switch</strong></td>
</tr>
<tr>
<td></td>
<td>See Page 27.</td>
</tr>
<tr>
<td>8</td>
<td><strong>Master Switch</strong></td>
</tr>
<tr>
<td></td>
<td>Operates the master solenoid which disconnects and connects the batteries from all</td>
</tr>
<tr>
<td></td>
<td>circuits except the tachograph (where fitted). Do not switch off while the engine</td>
</tr>
<tr>
<td></td>
<td>is running.</td>
</tr>
<tr>
<td>9</td>
<td><strong>Range Inhibited Light</strong></td>
</tr>
<tr>
<td></td>
<td>Illuminates to advise when the transmission is being inhibited. Range shifts</td>
</tr>
<tr>
<td></td>
<td>requested by the operator may not occur.</td>
</tr>
<tr>
<td>10</td>
<td><strong>Ignition Switch</strong></td>
</tr>
<tr>
<td></td>
<td>- Off - All circuits inoperable except head and side lights, horn, washer, wiper</td>
</tr>
<tr>
<td></td>
<td>bulb test and hazard lights.</td>
</tr>
<tr>
<td></td>
<td>- Run - All circuits operable</td>
</tr>
<tr>
<td></td>
<td>- Start - Starter motor engaged</td>
</tr>
<tr>
<td></td>
<td>- Not used on this application</td>
</tr>
<tr>
<td>11</td>
<td><strong>Hazard Warning Switch</strong></td>
</tr>
<tr>
<td></td>
<td>Operating the switch causes all the direction indicators to flash simultaneously.</td>
</tr>
<tr>
<td></td>
<td>A warning lamp in the switch indicates that the hazard lights are in operation.</td>
</tr>
<tr>
<td>12</td>
<td><strong>Rear Fog Light Switch</strong></td>
</tr>
<tr>
<td></td>
<td>Operates when the sidelights are turned on. A warning lamp indicates that the fog</td>
</tr>
<tr>
<td></td>
<td>lights are on.</td>
</tr>
<tr>
<td>13</td>
<td><strong>Side and Headlights Switch</strong></td>
</tr>
<tr>
<td></td>
<td>This is a two position switch. The first position operates the sidelights. The</td>
</tr>
<tr>
<td></td>
<td>second position operates the side lights and head lights.</td>
</tr>
</tbody>
</table>
Warning Lights

**Centre Door (Red)**
Illuminates when the centre door is open.

**Emergency Exit (Red)**
Illuminates when the emergency exit is open.

**ASR (Blue)**
*Not used*

**Main Beam (Blue)**
Illuminates when the headlights are on and main beam is selected or headlight flash is operated.

**Engine Check (Yellow)**
If this light illuminates, a minor fault has occurred which may result in reduced power. The vehicle can still be driven but the fault must be rectified as soon as possible.

**Wait to Start (Yellow)**
Engine system check in progress. Start when extinguished.

**Left Turn Signal (Green)**
Flashes to indicate a left turn, or if permanently on indicates bulb failure.

**Master Warning (Red)**
If this light comes on, the vehicle must be stopped as there is a problem with one of the following: low air pressure or low coolant level.

**Right Turn Signal (Green)**
Flashes to indicate a right turn, or if permanently on indicates bulb failure.
Warning Lights

Parking Brake (Red)
Illuminates when the Parking Brake is applied.

ABS ★ (Red)
Illuminates when the ignition is switched on, then goes out. If it comes on whilst driving or fails to go out, a fault is present in the system.

High Coolant Temperature (Red)
Not used. Function is part of the engine warning light system. An engine protection fault is indicated by illumination of the red engine check light.

High Gearbox Temperature (Red) ★
Illuminates when the gearbox oil temperature is too high.

Battery Charging (Red)
Light illuminates then goes out when engine is started and battery is being charged.

Brake Pad Wear (Yellow)
Not used

Engine Door (Red)
Illuminates if the engine rear door is not closed.

Rear Fog Light (Yellow)
Illuminates when the rear fog lights are switched on.

Bus Stop Indicator (Red)
Indicates the bus stop button has been pressed.

Engine Protection Lamp (Yellow)
Not used. Function is part of the engine warning light system. An engine protection fault is indicated by illumination of the red engine check light.
Warning Lights

Engine Check (Red)
If this light illuminates, a major fault has occurred. The vehicle should be driven to the side of the road as soon as it is safe to do so and the engine switched off.

Oil Pressure (Red)
Illuminates with ignition then goes out when engine is started. Does not function as oil pressure warning light. Low oil pressure is indicated by illumination of the red engine check light.

Low Air Pressure (Red)
Illuminates and a buzzer sounds when the air pressure in the air system is too low.

Water in Fuel (Yellow)
Illuminates when water is detected in the fuel filter. Used when chassis sensed system is used.

Low Coolant (Red)
Illuminates and a buzzer sounds when the coolant level is low.

Transmission Fault (Red)★
Indicates the transmission has developed a fault.
(B300, Voith, & Allison 2000)

Retarder (Yellow)
Illuminates when the retarder is in operation.

Air Suspension (Yellow)
Illuminates when vehicle is in kneeling mode.
Warning Lights

ABS

Warning Light Function
The warning lamp informs the driver of the system condition and to transmit blink codes for system and diagnostic information.

If the warning lamp fails to go out when the vehicle is driven off, or if it comes on shortly after drive off, this is an indication that the ABS system is either disabled or partially disabled due to a fault. If the system is disabled the driver still has full use of the conventional braking system. When the warning lamp lights up this indicates increased danger of wheel lock-up. The driver should exercise caution when braking to avoid loss of control due to wheel skid.

The warning lamp is switched on (bulb check) after “ignition on”. If a wheel speed sensor fault was not stored in the fault memory before the last “ignition off”, the warning lamp will be switched off about 2 seconds after “ignition on”, provided the static system test was successfully completed. The warning lamp the remains switched off when the dynamic system test has successfully concluded.

If a wheel speed sensor fault was stored before the last “ignition off”, the warning lamp remains on until the static and dynamic system test has successfully been completed - a stored fault.

• The driver is responsible for taking note of the warning lamp. If the warning lamp fails to light up immediately after “ignition on” this indicates that the lamp bulb is defective. It MUST be replaced without delay.

• When a fault occurs, it is essential that the ABS is checked immediately in an authorised workshop in order to repair the fault and return the system to normal operation. Failure to do so may result in unforeseen consequences.

Safety Instruction
While the ABS increases the vehicle safety, it is not able to overcome natural physical laws. ABS can only optimise the utilisation of the available traction between the tyres and the road. ABS is not able to compensate for poor driving, to avoid the consequences of driving too close to the vehicle in front, and/or driving into a bend with excessive speed.
Warning Lights

Body Functions

1. Passenger Stop Request
   Illuminated when a passenger requests stop by pushing stop button.

2. Blank Cover

3. Wheelchair Passenger Request Stop
   Illuminated when the push button at the wheelchair location or the external push to rear of entrance door has been pressed.

4. Ramp Extended
   Illuminated whilst the ramp is in the extended position. Audible warning also sounds.
Controls

Switch Bank

**Saloon Lights**
Switch on to illuminate either:
- LH - Standard Lighting.
- 2nd & 4th - Single row.
- LH rear - two row continuous.

**Saloon Lights**
Switch on to illuminate either:
- RH - Standard Lighting.
- 3rd & 5th - Single row.
- RH rear - two row continuous.

**Cab/ Light**
Switch on to illuminate the cab light.

**Demister**
Press to operate two speed fan to demist. Also set temperature control to Hot position.

**Destination Light**
When switched on illuminates destination sign.

**Saloon Heating**
Activates heating to saloon.

**Air Conditioning**
Activates the cab air conditioning system. Two position switch giving slow and fast air to cab. Can only be operated when cab temperature exceeds 15°C.

**Driver’s Alarm**
Operates assault alarm and hazard warning lights.
Controls

Heating & Ventilation

General
The system consists of two parts:

1. Saloon - heating provided by convectors running along both sides of the vehicle.

2. Cab and entrance area - demisting, heating and ventilation provided by radiator/fan unit located below the LH front dash.

Permanently open outlets are positioned across the front of the dash for efficient windscreen demisting.

A permanently open outlet is positioned at floor level, in the entrance area for heating and ventilation.

Adjustable rotary vents are positioned in the driver’s cab. These provide heat or ventilation to the cab or heat or ventilation to the driver’s footwell area.

Operation

Saloon Heating
Switch to On position.

Cab and Entrance Area
The temperature of the air delivered through the outlets is controlled by the slide control. This slide control enables the air flow to be directed to the windscreen demister outlets, the adjustable vents or the entrance/gangway outlet, or divided between them.

Toggle Switch
The three position switch (Off, Normal, Boost) controls the amount of air delivered through the outlets.

NOTE
Use Boost for initial warm up or severe weather conditions only. Using the Normal speed will extend the life of the fan.
## Controls

### Multi Function Switch

<table>
<thead>
<tr>
<th>Windscreen Wash</th>
<th>Windscreen Wipers</th>
<th>Off</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Windscreen Wash" /></td>
<td><img src="image" alt="Windscreen Wipers" /></td>
<td><img src="image" alt="Off" /></td>
</tr>
</tbody>
</table>

To activate the Wash System, push the body of the Switch towards the Steering Column.

The Windscreen Wipers are switched on by rotating the body of the Multifunction Switch. To select the desired function, rotate the body until the symbol aligns with the arrow.

- **Off**
- **Timed Interval**
  - In this position the wipers make a single sweep across the windscreen at timed intervals.
- **Low Speed**
- **High Speed**
Controls

Multi Function Switch

Direction Indicators

Direction Indicator **Right** - Move lever clockwise.

Direction Indicator **Left** - Move lever anticlockwise.

To operate the lane-change mode, move the lever against spring pressure. When part way released, lever will return to off position.

Headlights: Dipped/Main Beam

Pull lever upwards to change between Dip and Main Beam.

**Headlights: Flash**

Pull lever fully upwards towards Steering Wheel. The Headlight Flash can also be operated when Turn Signal lamps are on.

Horn

Press Horn push button on end of Multifunction Switch.
Controls

Automatic Gearbox Range Selector

AT545 Selector

- **R**: Reverse
- **N**: Neutral (Starter interlock released)
- **D**: Drive (normal automatic operating range)
- **3**: Restricted automatic operating range
- **2**: Restricted automatic operating range
- **1**: Low gear

2000 Series Selector

- **R**: Reverse
- **N**: Neutral (Starter interlock released)
- **D**: Drive (normal automatic operating range)
- **3**: Restricted automatic operating range
- **2**: Restricted automatic operating range
- **1**: Low gear

B300R Keypad Selector

- **R**: Reverse (press with reverse interlock)
- **N**: Neutral
- **D**: Drive (normal automatic operating range)
- **↑**: Used to select a higher or lower forward range. One press changes the range selected by one
- **Mode**: Not used
Controls

Automatic Gearbox Range Selector

Voith Selector

R  Reverse

D  Drive (normal automatic operating range)

N  Neutral (starter interlock released)

2  Restricted automatic operating range

Reverse Interlock

Reverse Interlock Button ★ (Yellow)

The button must be pressed in conjunction with the reverse gear button.

Failure to do so will result in reverse gear not being selected.
Controls

Steering Column

The vehicle is fitted with an air adjustable steering column. The column is adjustable for height and rake.

The foot operated column adjustment switch is mounted in the floorplate directly in front of the column.

To adjust the column position, the handbrake must be applied. Grasp the steering wheel and depress the foot button, move the steering wheel to a comfortable driving position and release the foot button to lock the column in position.

CAUTION

The steering column is only adjustable when the handbrake is in the on position, the column cannot be adjusted when the vehicle is on the move.
**Controls**

**Accelerator Pedal**
The accelerator pedal controls the engine and bus speed.

---

**Brake Pedal**
The brake pedal controls the application of the bus service brake and integral transmission retarder. Use of the retarder will increase the service life of the brake linings and drums. Light braking applications will utilise the retarder first with increasing pedal effort applying both the retarder and service brakes.

**Parking Brake**
The parking brake (handbrake) is applied by pulling back the lever until it locks into position. To release the parking brake, the sleeve on the lever must first be lifted, then push the lever fully forward.

---

**WARNING**
It is essential to apply the parking brake when leaving the vehicle.

---

**CAUTION**
Overheating the brakes may increase the distance required to stop the vehicle.
Controls

Vehicle Lift System★

The vehicle lift system is designed to raise the ground clearance of the vehicle by approximately 60mm and increase the vehicle's approach and departure angles, when approaching severe changes in gradient.

When returning the vehicle to its normal ride height, press the switch on the instrument panel and the vehicle will start to lower. It is important that the vehicle is allowed to lower to its normal ride height before driving is continued.

Alternatively the switch for this function may be mounted on the front Electrical Distribution Panel as an aid to servicing.

The system is activated by an instrument panel switch.

When the system is activated, the vehicle speed must **not exceed 10 kph**. If the switch is pressed with the vehicle exceeding this speed the system will not activate until a drop in speed, to 10 kph, is achieved.
Controls

Suspension Kneeling System

The Kneeling System may be fitted with options specified by the Bodybuilder but not covered on this page. Operators must familiarise themselves with any instructions issued by the Bodybuilder.

The Kneeling System deflates and inflates the suspension air bags on the front suspension. The suspension cannot be lowered unless the parking brake is in the ON position.

If the handbrake is moved to the OFF position while the front of the vehicle is lowered, the suspension will automatically return to normal ride height.

Kneel Button - Black
Press and hold until lowering reaches required level.

The button is not operative if:

- The vehicle is moving.
- The handbrake is not ON.
- The system air pressure is too low.

Normal Button - Blue
Press once and the vehicle will return to normal ride height.

The vehicle will also return to normal ride height automatically if the handbrake is released.

Full Kneel Button* - Black (when fitted)
Press and hold until the vehicle has lowered to the required level.

NOTE
Interlocks may be fitted to prevent the doors from opening when the vehicle is moving, or whilst the vehicle is raising or lowering.
Controls

Doors

The door controls are mounted on the driver's side console. The controls fitted depend if the body is a single or twin door configuration. The illustrations shown are for the single door system, front door operation is the same for both body configurations.

1. Front Door Open Button - Red
Press the button to open the front doors.

2. Front Door Close Button - Green
Press the button to close the front doors.

NOTE
The vehicle is fitted with interlocks to prevent the doors from opening when the vehicle is moving, or whilst the vehicle is raising or lowering.

Models with Centre Doors

3. Centre Door Open Button - Red
Press the button to open the centre doors.

4. Centre Door Close Button - Green
Press the button to close the front doors.

The buttons are not operative if:
• The vehicle is moving.
• The handbrake is not ON.
• The system air pressure is too low.
**Controls**

## Ramp ★

The ramp controls are mounted on the driver's side console.

### NOTE

The vehicle is fitted with interlocks to prevent the ramp from being extended when the vehicle is moving, or whilst the vehicle is raising or lowering.

1. **Ramp Extend Button - Red**
   
   Press the button to extend the ramp. The ramp will stop if the button is released.

2. **Ramp Retract Button - Green**
   
   Press the button to retract the ramp. A door brake is applied to prevent movement of the vehicle at all times the ramp is not fully stored.

   Closure of the doors is inhibited whenever the ramp is not fully stored.

   A warning lamp is illuminated whenever the ramp is not fully stored.

### External Request Button

The external ramp request button is located adjacent the door.

The buttons are not operative if:

- The vehicle is moving.
- The handbrake is not **ON**.
- The system air pressure is too low.

### WARNING

Ensure that passengers and pedestrians are clear before extending ramp and that passengers are fully boarded before retracting. Maximum loading should not exceed 300kg.
Controls

Driver’s Seat

The driver’s seat is adjustable for height and backrest position and forward and rearward positioning.

To adjust the seat base height rotate lever (A) until the desired height setting is reached.

Rotation direction:
- Clockwise to raise.
- Anti-clockwise to lower.

To adjust the backrest, raise lever (B), move the backrest into a comfortable position, release the lever to lock the backrest in desired position.

To adjust the forward and rearward position raise the bar (C) at the front of the seat base, move the seat into a comfortable position, release the bar to lock the seat in desired position.

⚠️ WARNING
Do not attempt to adjust the Driver's seat whilst driving. Gently rock the Driver’s seat after adjustment to ensure that the locking mechanism has engaged.
Emergency Equipment

Break Glass Hammer

The break glass hammer is located in a compartment above the passenger saloon rear window. Access to the hammer is gained by pushing out the transparent cover.

Fire Extinguisher

The fire extinguisher is mounted on the front bulkhead adjacent the driver's compartment.
Emergency Exit Doors
Main Door

External Operation

Emergency Opening
Push button (A), the doors will open.

Internal Operation

The main doors can be opened and closed by using the internal buttons.

Emergency Opening
To open the doors push button (B).

Closing
The doors can also be closed from this position by using the internal close button (C).
Emergency Exit Doors
Centre Exit Door

External Operation

Emergency Opening
Push button (A), the doors will open.

Internal Operation
The main doors can be opened and closed by using the internal buttons.

Emergency Opening
To open the doors push button (B).

Closing
The doors can also be closed from this position by using the internal close button (C).
Emergency Exit Doors

Rear Door

Internal Operation
The rear emergency door is secured by means of two forked latches and activation is by interior and exterior handles.

Emergency Opening
Pull lever (A) firmly to the full extent of its travel and push the door open.

An anti-tamper microswitch is fitted to warn the driver, by dashboard buzzer and/or lamp, if the interior handle is being operated whilst the vehicle is moving.

External Operation
Pull lever (B) firmly to the full extent of its travel and pull the door open.
Starting and Driving

CRT Exhaust

Fuel Requirement
Vehicles fitted with a CRT exhaust system (Continuously Regenerating Trap) MUST be run on low sulphur diesel fuel (such as City diesel) with a maximum sulphur content of 0.5%.

Engine

Normal Starting Procedure

- Ensure the parking brake is in the ON position.
- Select neutral gear.
- Turn master switch on.
- Turn ignition switch to RUN and wait for WAIT-TO-START light to go out.

CAUTION

It is imperative that this starting procedure is followed correctly to allow the Cummins ECM (engine control module) to run through its initialisation sequence.

Failure to apply this starting procedure could result in the engine warning system being activated.

- This lamp is also illuminated while the inlet manifold is heating (grid heater).
- Turn ignition switch to START. As soon as the engine has started, release the switch to Run.

CAUTION

Do not operate the engine at high rpm when starting the engine in temperatures below +3°C as damage may be caused to the hydraulic pump.

- Check that the battery charge warning light goes out.
- Idle the engine for 3 - 5 minutes before operating with a load.

CAUTION

Do not operate the starter for more than 30 Seconds continuously. Wait 2 minutes between each attempt to start. If the engine oil pressure warning light does not go out within 15 seconds of starting. Stop the engine.
Starting and Driving

Engine

Shutting Down

After full load operation, idle the engine for 3 - 5 minutes before shutting off to allow the oil and coolant to remove heat from many parts, especially the turbocharger.

To stop the engine, turn the ignition switch to OFF.

Engine Operation

- Do not operate the engine at full throttle below peak torque rpm for more than 30 seconds.
- Allow the engine to idle 3 to 5 minutes before shutting it off.
- Shut the engine off if the oil pressure warning light or coolant temperature warning light comes on.

CAUTION

Continuous operation with low coolant temperature below 60°C or high coolant temperature above 100°C can damage the engine.

Most failures give an early warning.

Look and listen for changes in performance, sound, engine appearance that can indicate service or engine repair is needed.

Some changes to look for are

- Engine misfire
- Excessive smoke
- Vibration
- Loss of power
- Unusual engine noise
- An increase in engine noise
- Fuel, oil or coolant leaks
- An increase in fuel consumption

Check List Before Moving Off

- Sudden changes in engine operating temperature or oil pressure.
- Check that the air pressure reading on both gauges is not in the red sector.
- Check that the engine is idling satisfactorily.
- See that no warning lights are showing except the handbrake.
Starting and Driving Away

The engine can only be started with the neutral button (N) selected. With the vehicle standing still, the parking brake applied, and the engine running at idling speed, preselect the desired speed range, wait 1 to 2 seconds, then release the brakes and drive away by depressing the accelerator.

CAUTION

Never accelerate when operating the speed range selector.

CAUTION

At temperatures below -23°C, start the engine and warm up the gearbox in neutral for approx 10 to 15 minutes before selecting speed range.

NOTE

To assist drivers in correctly locating the pedals before engaging gear the vehicle is fitted with a change speed interlock.

With this interlock fitted, drive can only be selected when the footbrake is depressed.

If a speed range is selected with the engine speed above 900rpm and/or with the accelerator depressed, an interlock in the automatic control unit prevents a gear being selected.

Only when the engine speed is below 900rpm and the accelerator is in the idling position is the gear selected.
Starting and Driving

Automatic Gearbox

Speed Ranges

The transmission will prevent a change into any range at a speed which will cause the engine to over speed.

Any lower range may be selected at any time, but will only engage when the road speed is reduced.

The inhibit effect will cause changing down to occur at a slightly higher speeds than normal.

**CAUTION**

Do not allow the vehicle to coast in neutral. This practice can result in severe transmission damage. Also no engine braking is available.

**CAUTION**

Never change from neutral (N) to drive (D) or reverse (R) at engine speeds above idle. The vehicle will lurch forwards or backward and the transmission will be damaged.

**D Drive**

This is the normal forward gear. When the accelerator is depressed, the vehicle will move off in first gear and change up progressively to top gear as the speed builds up. As the vehicle slows down, the transmission will change down into the correct gear for restarting

2 or 3

If the road or traffic conditions make it desirable to prevent the transmission changing into a higher gear, either 2 or 3 should be selected to limit the range. These positions provide progressively greater engine braking power, the 2 range having the greatest effect.

When conditions improve, return the selector to the normal driving position.

1

This is the low gear for use when pulling through mud and snow or drawing up steep grades. This position also provides maximum engine braking power.

**R Reverse**

The vehicle must be completely stationary before changing from forward to reverse or reverse to forward. This selection has the greatest tractive advantage.

**N Neutral**

Use this position when starting the engine. If the engine will start in any other position, the auto cut-out is not working. Neutral should also be selected when experiencing longer than normal periods of idling. Always apply the handbrake.
Starting and Driving

Automatic Gearbox

On certain gradients the gearbox may tend to “hunt”, that is to shift up and down at frequent intervals. This is because the available power is just too low for the higher ratio and yet too high for the lower ratio. In such cases, ease back the accelerator or select a lower ratio manually.

In the same way, use the selector to obtain a lower ratio when descending a steep gradient, so that the gearbox does not shift up too far and reduce the engine braking effect.

The next lower ratio can be selected rapidly when needed (for instance when accelerating or tackling a sudden gradient) by depressing the accelerator to the kickdown position. This pedal position effects the earliest possible down-shift into the lower gear.

Stopping in Traffic

During short stops at traffic lights etc the gearbox need not be returned to neutral, but the vehicle brake should be applied to prevent the vehicle from creeping forwards.

During longer stops the neutral (N) button should be selected and the handbrake applied.

Stopping the Engine

The vehicle can be stopped at any time, regardless of the selector position.

As the vehicle comes to a halt the automatic control will shift down to the corresponding ratio for restarting depending on the drive range.

Driving Downhill

Select a suitable gear ratio before reaching the downhill gradient and reduce speed so that the gearbox shifts down to the highest ratio of the range selected. This will prevent the gearbox from shifting back to a higher speed range automatically.

Driving on Ice or Snow

The automatic gearbox continually provides proper balance between required power and good traction. The driver can have better control of his vehicle because of this smooth, constant flow of power through the drive train. When driving on ice or snow, any acceleration or deceleration should be made gradually.

Parking

CAUTION
Since the clutches and brakes in the gearbox are disengaged when the engine is stopped, there is no direct mechanical link between the engine and driven road wheels. Therefore it is essential to apply the parking brake when leaving the vehicle. In addition, it is good practice on slopes to chock the wheels, thus ensuring that the vehicle cannot roll away.
Starting and Driving

Retarder

The retarder is an electromagnetic brake, and suffers no mechanical wear. This saves wear on the service brakes and in an emergency the full braking effect (no fading) of the service brakes is available.

Therefore application of the retarder is recommended on lengthy gradients or when slowing down from high speed.

A slight pressure on the brake pedal brings the retarder progressively into operation, carrying it through the stages of operation.

No special equipment is visible in the driver's cab, except a retarder warning lamp which illuminates when the retarder is in operation.
Starting and Driving

Engine Shutdown

- Apply the handbrake.
- Allow the engine to idle for a few moments to allow even cooling.
- Turn the ignition switch to **OFF**.
- Turn off the master switch. This must not be done before the engine has stopped.

Emergency Engine Stop

The emergency stop control is located in the engine compartment to the left of the engine.

The red knob is pushed to stop the engine.

Speed Control Humps

It is important to recognise that there should be a normal maximum speed of operation over such devices that is consistent with ensuring the long term durability of vehicles. On this basis it is recommended that a maximum traverse speed of 15 mph is not exceeded over speed humps.

Where vehicles are consistently driven over traffic calming devices at speeds in excess of this limit then the long term durability of the vehicle may be adversely affected.
Battery Jump Starting

General

Direct connection of either slave batteries or a donor vehicle battery to a flat battery may result in an explosion.

Method 1
Use the boost socket only to connect donor battery to the recipient battery.

Method 2
As an alternative to method 1, the positive connection may still be made directly, but the negative terminal MUST NOT be connected directly to the recipient battery terminal. This should be connected to a remote chassis earth point. If a boost socket is not fitted to the vehicle then the positive connection may be made directly, but the negative terminal MUST NOT be connected directly to the recipient battery terminal. This should be connected to a remote chassis earth point.

This position should be far enough away from the battery to ensure that any spark generated by disconnection will not reach the gas produced at the battery.

When disconnecting the battery, the remote negative connection MUST be removed first.

CAUTION
The vehicle features a swing out battery carrier. After any maintenance has been carried out it is essential that the tray is pushed fully in, the securing rod is correctly located and the nut is fully tightened.

CAUTION
Care must be taken when connecting the vehicle boost socket. Before carrying out any electric welding, disconnect the electronic control units.

WARNING
Risk of explosion - Hydrogen gas.
An amount of hydrogen gas is produced when the flat battery receives a charge from the donor battery, or more pronounced, from the higher voltage delivered by its own alternator when the engine starts.
When the recipient battery is being disconnected a spark may occur and ignite the hydrogen gas.

Adhere to the following procedures when jump starting batteries:
Filling Points

Fuel Oil

The filler cap is located behind the access door flap located at the rear offside of the vehicle. Ensure that the filler cap is correctly fitted after refuelling.

Windscreen Wash

The windscreen washer reservoir is located behind the body front outer access panel below the windscreen. The panel is secured by lock catches on each side. These can be opened by using the Driver's key supplied.

Engine Oil - Side Dip

If the vehicle is fitted with side dip and fill option. The engine oil filler cap and dipstick are located behind an access flap at the right hand rear of the vehicle.
## Filling Points

### Hydraulic Oil

The hydraulic filler is located in the engine compartment at the rear of the vehicle. The hydraulic oil level can be checked using the dipstick, the level should be maintained between the High and Low markings.

### Coolant

The coolant filler cap is located behind an access door flap at the rear right corner of the vehicle. The coolant level sight gauge is mounted below it to the rear.

---

**WARNING**

Do not remove the cap while the system is hot/under pressure. Suddenly removing the cap will allow scalding steam or coolant spray to escape, possibly resulting in injury.
Refuelling Procedure

1. Remove dust cap from filler neck.

2. Rotate the poppet lever clockwise until it locks in position.

3. Connect the nozzle to the adaptor and rotate it anticlockwise to lock it in place.

4. Pull fuelling trigger towards you and notch lever open. The fuelling trigger will return to the closed position when fuelling is complete.

5. Rotate the poppet lever clockwise.

6. Disengage nozzle from adaptor with an anticlockwise rotation and return the nozzle to its holster.
Cleaning

Body Exterior

Exterior Paintwork

CAUTION
All cleaning materials must be used strictly in accordance with the manufacturers instructions.

Use neutral soaps and cleaners only. When using automatic washers, ensure plenty of water is used and that brush pressure is not excessive.

Do not clean with dry cloths.
Do not use pressure washers.

Wash the paintwork regularly, either with lukewarm water and a soft sponge, or by automatic washer.

Remove all contaminants etc, particularly from behind mouldings and at joints using a normal hose pipe only.

Remove oil, diesel, tar and sap stains with non-abrasive liquid polish.

Repair surface fractures, deep scratches, stone chips, etc, promptly.

ABS

CAUTION
Do not use Acetone for cleaning ABS as this will affect the surface of the ABS upon exposure for just a short period and will lead to discolouration.

Body Interior

CAUTION
All cleaning materials must be used strictly in accordance with the manufacturers instructions.

Use neutral soaps and cleaners only. Do not use abrasive cleaners or polishes.

Do not use solvents: white spirit, petrol, thinners, etc.

Sponge clean regularly with soap and warm water.

The recommended composition of any soaps used should be as shown:

- Less than 20% Anionic Surfactant.
- Less than 15% Non Ionic Surfactant.
- Non-Caustic Alkali 2-6% maximum.
- PH level of between 10 and 12.
- No Solvents.
- No Ammonia.
- No Caustic Alkali.

The detergent can be applied neat to a wet cloth/scrub pad.

If extremely stubborn marks are found Isopropyl Alcohol can be applied using a cloth. The surface must be rinsed with either hot or cold water immediately after use.

CAUTION
All cleaning materials must be used strictly in accordance with the manufacturers instructions.

Use neutral soaps and cleaners only. When using automatic washers, ensure plenty of water is used and that brush pressure is not excessive.

Do not use solvents: white spirit, petrol, thinners, etc.

Use neutral soaps and cleaners only. Do not use abrasive cleaners or polishes.

Do not use solvents: white spirit, petrol, thinners, etc.
Cleaning

Moquette
Vacuum clean regularly. Remove heavy soiling with a stiff brush. Stains should be removed using a proprietary cleaning fluid.

CAUTION
Moquette should be cleaned thoroughly to prevent a build up of dust which could affect the fire retardancy of the seating.

Panelling
Sponge plastic laminate facings and panels regularly with mild cleaning solution and dry off with a leather.

Fittings
Wash chrome plated or aluminium fittings approximately every two weeks with soap and water only.

Flooring
Regular upkeep with suitable products is the best guarantee that the flooring stays clean. The flooring’s cleaning will be dictated by the intensity of traffic, climatic and environmental conditions.

Colour is an important factor, affecting the level of cleaning required.

Dark Brown ............. Very easy
Dark grey ............... Easy care
Medium blue & grey . . Moderate care
Beige, light grey . . Heavy care needed

A mop can be used for daily maintenance and rising but always ensure the mop is rinsed in clean water to prevent redistribution of dirt.

Cleaning agents should be used in the prescribed dilution relative to the degree of soiling and, most importantly in heavily soiled areas, the solution should be left on the floor for a few minutes to take effect.

Flooring must be rinsed to ensure thorough removal of the cleaning agents’ residue, thus avoiding a reduction in slip-resistance and discolouration of the flooring.

Irregular cleaning can result in problems building up. For this reason, the importance of a regular programme, suited to the usage of the area cannot be overstated. A typical routine could involve daily sweeping and damp mopping complemented by periodic scrub cleaning.

High-pressure cleaners can be used successfully. However these are complicated to use and in view of this and the variations caused by incorrect use, serious deterioration may occur. For these reasons we absolutely advise against the use of this type of equipment unless strict operating instructions are in place.
Cleaning

Body Interior

**Flooring (continued)**

Examples of combined cleaning cycles:

- Aisles swept or vacuumed every day.
- Aisles wet cleaned every week.
- Major overall clean every three months including treatment of stains.

**Detergent Composition**

Detergent composition can vary widely. Alkaline detergents are best suited to the cleaning of buses and they will generally deal with the majority of soils.

The composition of a cleaning product suitable for cleaning the flooring on the Enviro 300 would be as follows:

- Surfactant: 2 - 7% w/w
- Non-caustic alkali: 2 - 6% w/w
- *pH (conc): 12 - 13
- pH (10% w/w solution): 10 - 12
- Solvent: None
- Caustic alkali: None
- Phosphate: None
- Ammonia: None
- Perfume: Optional

*PH 12 - 13 will give the best results, when correct dilution ratio is observed. Care must be taken that the detergent is thoroughly removed in the rinsing operation, otherwise this may lead to the flooring performance being degraded.

**Rinsing**

Care must be taken to rinse the flooring thoroughly with hot or cold water. Vacuum or mop up excess water and allow to dry.

**Dressing and Polishing**

Treating the flooring with metallised emulsion is not recommended due to the intensity of passenger traffic, it will wear off quickly and unevenly thus creating unsightly patches on the floor.

**Stain Removal**

In many cases a stronger concentration of the maintenance detergent will remove stubborn stains. Where the stain is of a more permanent nature (i.e. graffiti or chewing gum) specialist products are available from most chemical suppliers, however, it is always sensible to check that they are compatible with the flooring before using them.

**Troubleshooting**

*New flooring becomes soiled after two to three months despite cleaning:*

- The choice of detergent is incorrect.

*Gray streaks are left after cleaning:*

- Ascertain whether the streaks are due to soiling or detergent. If streaks are due to soiling check that the detergent choice and detergent dilution is correct. If the streaks are due to detergent residues the rinsing may be inadequate or the detergent may being used at too high a concentration.
Before driving the vehicle, the recommended daily checks should be carried out.
For the complete service schedule see the Service Manual.
Preventive maintenance begins with a day to day awareness of the condition of the vehicle.

<table>
<thead>
<tr>
<th>Description</th>
<th>Operation</th>
<th>Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Engine</strong></td>
<td>Check oil level</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Check coolant level</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Drain fuel / water separator</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Drain sedimenter</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Check for fluid leakage</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Check for loose or damaged parts</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Visually inspect for loose, chunked, or frayed belts</td>
<td>●</td>
</tr>
<tr>
<td><strong>Air Cleaner</strong></td>
<td>Check restriction indicator</td>
<td>●</td>
</tr>
<tr>
<td><strong>Gearbox</strong></td>
<td>Check oil level</td>
<td>●</td>
</tr>
<tr>
<td><strong>Braking System</strong></td>
<td>Check all systems for correct operation</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Check for correct air pressure</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Check operation of park brake</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Check operation of service brakes</td>
<td>●</td>
</tr>
</tbody>
</table>

This maintenance schedule covers only the regular checks to be carried out by the vehicle operator. For servicing requirements, consult the Service Manual.
Before driving the vehicle, the recommended daily checks should be carried out.
For the complete service schedule see the Service Manual.
### Maintenance

#### Summary

Preventive maintenance begins with a day to day awareness of the condition of the vehicle.

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<thead>
<tr>
<th>Description</th>
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<th>Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Steering</strong></td>
<td>Check for play at steering wheel</td>
<td>●</td>
</tr>
<tr>
<td><strong>Hydraulic System</strong></td>
<td>Check reservoir fluid level</td>
<td>●</td>
</tr>
<tr>
<td><strong>Electrical</strong></td>
<td>Check alternator is charging</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Check battery level</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Check operation of all lights</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Check instruments for correct operation</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Check horn</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Check screen washer operation &amp; ensure reservoir is filled</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Check screen wipers</td>
<td>●</td>
</tr>
<tr>
<td><strong>Wheels &amp; Tyres</strong></td>
<td>Check wheel nut security</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Check tyres for damage</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Check tyre pressure</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Check tread depth</td>
<td>●</td>
</tr>
<tr>
<td><strong>Body Fittings</strong></td>
<td>Check windows, mirrors and lamps are clean &amp; unobstructed</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Check and adjust (if necessary) position of drivers seat &amp; mirrors</td>
<td>●</td>
</tr>
</tbody>
</table>

*This maintenance schedule covers only the regular checks to be carried out by the vehicle operator. For servicing requirements, consult the Service Manual.*
# Maintenance

## Summary

Preventive maintenance begins with a day to day awareness of the condition of the vehicle.

<table>
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<tr>
<th>Description</th>
<th>Operation</th>
<th>Daily</th>
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</thead>
<tbody>
<tr>
<td>Doors</td>
<td>Check the operation of all doors</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Check emergency door is unlocked</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>Check locker and access door/flaps are secure</td>
<td>●</td>
</tr>
<tr>
<td>Heating, Ventilation &amp; Air Conditioning System</td>
<td>Check that all systems are operational</td>
<td>●</td>
</tr>
<tr>
<td>Fuel Tank</td>
<td>Check that there is adequate fuel for the journey</td>
<td>●</td>
</tr>
</tbody>
</table>

*This maintenance schedule covers only the regular checks to be carried out by the vehicle operator. For servicing requirements, consult the Service Manual.*
Maintenance

Body Checks

Corrosion Inspection
When inspecting the underside of the Vehicle or Bodywork view all the understructure which could hold dirt/road salts. Also check damaged surfaces for signs of bare metal.

Structural Inspection
Check the underside of the Bodywork for signs of loose mechanical fixing, cracks or weld failure of joints. On the exterior and interior, check for bulges or cracks on all joints and body structure intersections. Seats should also be checked for cracks in pedestals and for security on mountings.

Part Attachments
Check the security of pipes, cables, mudflaps, flooring, stepwells, handpoles, plus parts screwed, bolted, riveted or glued to the Bodywork.

Heating System
Check all pipe joints for signs of weeping anti-freeze. Ensure gate valves are capable of being turned on and off and are not leaking.

Electrical
Inspect wiring for signs of chafing, discolouration of joints or damage to protective covers.

Exterior Joints & Glazing
Check the glazing perimeter for signs of deterioration and possible water leaks or failure of joint adhesion.

Paint Finish
Inspect the exterior surface for signs of deterioration in the form of blisters, scratching or minor damage, which if not rectified will result in major problems.

NOTE
It is important to act quickly in rectifying defects, as recommended in the Service manual, since continued running in a defective condition could result in rapid deterioration.
Maintenance Checks

NOTE
Before driving the vehicle, the recommended daily checks should be carried out.
For the complete service schedule see the Service Manual.

Air Braking System
Check that the low air buzzer comes on with the ignition and goes off once the vehicle is started and the air pressure builds up.
Check the satisfactory operation of the parking brake.
Check that the correct pressure is indicated on the air pressure gauges, and they are not registering in the red sector.

Electrical System
Check the operation of all lights, switches, warning lights, direction indicators, stop lights and the horn.
Check that the alternator is charging correctly.
Check that instruments are working correctly.
Maintenance Checks

Hydraulic System

The hydraulic dipstick and filler is situated to the right of the engine on the frame upright.

The oil level should be checked with the engine idling.

Maintain the level between the High and Low marks.

Cooling System

The coolant level should be checked when the engine is cold or after 15 minutes if the vehicle has been running.

If coolant needs adding, top up with 50/50 mix of soft water/antifreeze solution.

The header tank filler cap is situated at the rear right hand side of the vehicle.

Engine Oil Level

The engine oil dipstick is situated at the rear of the vehicle with the oil and fuel fillers.

The correct oil level should register on the cross hatched area. Never operate the engine with the oil level below the cross hatched area or above the full mark.

NOTE

Wait at least five minutes after stopping the engine to check the oil level, this allows the oil to drain into the sump.

WARNING

Allow the system to cool sufficiently before removing the header tank filler cap as failure to do so can cause personal injury from heated coolant spray.
Maintenance Checks

Gearbox Oil - AT545

The gearbox dipstick and filler is situated to the left of the engine at the rear. Check oil on level surface.

Cold Run
Gearbox in neutral, run the engine for one minute to clear the oil system of air and check that the level is within the Cold run band.

Hot Run
Gearbox in neutral, with the engine idling and the gearbox at operating temperature, the level must be in the Hot run band. This check can be carried out immediately after use of the vehicle.

Gearbox Oil - 2000 Series

The gearbox dipstick and filler is situated to the left of the engine at the rear. Check oil on level surface.

Cold Run
Gearbox in neutral, run the engine for one minute. Engage drive, neutral, reverse and then select neutral. Check that the level is within the Cold run band.

Hot Run
Gearbox in neutral, with the engine idling and the gearbox at operating temperature, the level must be in the Hot run band. This check can be carried out immediately after use of the vehicle.

Gearbox Oil - B300R

The gearbox dipstick and filler is situated to the left of the engine at the rear. Check oil on level surface.

Cold Run
Gearbox in neutral, run the engine for 1 minute. Engage D and run for 30 secs at 1000 - 1500 rpm. Engage R to clear oil system of air. Engage N and allow to idle and check that the level is within the Cold run band.

Hot Run
Gearbox in neutral, with the engine idling and the gearbox at operating temperature, the level must be in the Hot run band.

This check can be carried out immediately after use of the vehicle.

For a more accurate oil level check, the diagnostic function of the gearbox keypad should be used - see Dart Service Manual.
Maintenance Checks

Gearbox Oil - Voith

To check the gearbox oil level the vehicle must be on level ground with the parking brake applied and at operating temperature.

With the engine idling and neutral 'N' gear selected, remove the dipstick and clean.

Insert the dipstick briefly to prevent a false reading from oil splash.

The level must be maintained between the "max" and "min" level.

---

Ride Height

Visually check to ensure the vehicle is sitting level.
## Maintenance

### Lubrication Chart

<table>
<thead>
<tr>
<th>Ref No</th>
<th>Vehicle Component</th>
<th>Capacity in litres</th>
<th>Specification</th>
<th>Recommended Brand</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Engine 4 cylinder</td>
<td>11</td>
<td>API CG-4/SH</td>
<td>Texaco Ursa Super Premium*</td>
</tr>
<tr>
<td></td>
<td>Engine 6 cylinder</td>
<td>17.5</td>
<td>ACEA E5 15W/40 CES 20077</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Gearbox - Allison AT545</td>
<td>18.9</td>
<td>API:CG-4/SH - SAE 15W/40</td>
<td>Texaco Ursa Super LA*</td>
</tr>
<tr>
<td></td>
<td>Initial fill</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oil change</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gearbox - Allison 2000 series</td>
<td>14</td>
<td>Castrol Transynd</td>
<td>Castrol Transynd</td>
</tr>
<tr>
<td></td>
<td>Initial fill</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oil change</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gearbox - Allison B300R</td>
<td>28.2</td>
<td>Dexron III</td>
<td>Texamatic 7045*</td>
</tr>
<tr>
<td></td>
<td>Initial fill</td>
<td>15.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oil change</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gearbox - Voith</td>
<td>25 - 28</td>
<td>Dexron III</td>
<td>Texamatic 7045*</td>
</tr>
<tr>
<td></td>
<td>Initial fill</td>
<td>23 - 26</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oil change</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Rear Axle 4 cylinder</td>
<td>9.5</td>
<td>API-GL5</td>
<td>Texaco Geartex*</td>
</tr>
<tr>
<td></td>
<td>Rear Axle 6 cylinder</td>
<td>18.7</td>
<td>85W/140</td>
<td>EPB 140</td>
</tr>
<tr>
<td>4</td>
<td>Cooling System 4 cylinder</td>
<td>20</td>
<td>Water/Antifreeze</td>
<td>Texaco Havoline XLC*</td>
</tr>
<tr>
<td></td>
<td>Cooling System 6 cylinder</td>
<td>22</td>
<td>50/50 Mix</td>
<td>ASTM D 4985</td>
</tr>
<tr>
<td>5</td>
<td>Power Steering &amp; Fan Drive system</td>
<td>16.5</td>
<td>Dexron IID or III</td>
<td>Texamatic 7045*</td>
</tr>
<tr>
<td>6</td>
<td>Steering Column Bevel Box</td>
<td>0.05</td>
<td>Dexron IID or III</td>
<td>Texamatic 7045*</td>
</tr>
<tr>
<td>7</td>
<td>Grease: King pin swivels</td>
<td>a/r</td>
<td>Multipurpose</td>
<td>Texaco Multifak EP2*</td>
</tr>
<tr>
<td></td>
<td>Battery carrier pivot, steering relay shaft</td>
<td>a/r</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Propshaft</td>
<td>a/r</td>
<td>Lithium Based Complex EP2</td>
<td>Texaco Hytex EP2*</td>
</tr>
</tbody>
</table>

*When using products other than those supplied by Texaco, consult your supplier to confirm compatibility*
Emergency Repairs

Jacking Points

![Diagram of jack on chassis outrigger]

**WARNING**

It is not permissible to jack on any part of the frame other than the proper jacking points. It is recommended that the vehicle is supported on stands as soon as there is sufficient clearance under the vehicle.

A jacking point is provided on the chassis outrigger behind the front wheel. Whenever possible, use one of these points to provide a secure location for a bottle jack or floor jack.

Check that the jack head is properly located on the jacking point before starting to lift the vehicle.

If the jacking point cannot be used (for example, if the jack is too tall to fit under the side of the vehicle), a long reach low height floor jack should be positioned under the front of the vehicle to lift on the front axle beam.
Emergency Repairs

Rear Axle Jacking Points

The jack may be positioned in the following locations:

Directly under the base of the air spring.

Under the chassis frame, where the crossmember in front of the rear axle crosses the frame longitudinal.

CAUTION

The jack must be directly beneath the air spring base. Never place the jack under the unsupported span of the member that connects the two air spring bases.
# Emergency Repairs

## Tyre Pressures

<table>
<thead>
<tr>
<th>Tyre Size</th>
<th>Laden Front Axle Load</th>
<th>Laden Rear Axle Load</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Load (kg)</td>
<td>Pressure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>psi</td>
</tr>
<tr>
<td>245/70R19.5 XZA</td>
<td>3300</td>
<td>80</td>
</tr>
<tr>
<td>245/70R19.5 XZE2</td>
<td>3500</td>
<td>85</td>
</tr>
<tr>
<td>245/70R19.5 XZE2+</td>
<td>3700</td>
<td>91</td>
</tr>
<tr>
<td></td>
<td>3900</td>
<td>96</td>
</tr>
<tr>
<td></td>
<td>4000</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td>4360</td>
<td>109</td>
</tr>
<tr>
<td>max. plated weights:</td>
<td>4480</td>
<td>113</td>
</tr>
</tbody>
</table>
Emergency Repairs
Tyre Pressures

Tyre pressures for any vehicle will depend on its laden axle loadings. The pressures can therefore only be finally determined by the bodybuilder, to take account of varying body types, passenger weights etc.

The table on Page 64 gives the nominal pressures for a range of axle loadings and can be used as a basis for determining tyre pressures after laden axle weights have been established.

The pressures quoted have been determined to ensure an acceptable compromise between ride comfort, handling, and tyre life. Reduction of pressures below those identified for any given axle load is not permitted unless agreed by the tyre manufacturer. An increase of up to 10% in front tyre pressures may provide improved front tyre life, particularly in urban conditions where sharp corners or roundabouts are frequently encountered. However, this improved life may be accompanied by a reduction in ride quality.

Increasing the rear tyre pressures in isolation is not permitted on rear engined bus applications, as handling could be adversely affected.

In case of doubt, reference should be made to TransBus International Customer Care or the Technical Department of the tyre manufacturer.
Emergency Repairs
Wheels and Tyres

Changing Road Wheels

- Chock the wheels.
- Clean the wheel nuts and and check that the threads are undamaged.
- Jack up the axle, as close as possible to the wheel to be changed.
- Remove the wheel nuts and wheel.
- Clean the mating edges of the hub and the wheel. Apply a thin coat of water repellent grease to the bore of the wheel.
- Check the the threads of the wheel studs are undamaged, clean and free from lubricant.
- The only lubricant permitted is light engine oil on the thread of the nut only.
- Fit the wheel, refit the wheel nuts and gradually tighten in the correct sequence.

Wheel Nut Torque
Front & Rear
385 - 425 Nm (283 - 313 lbf ft).

Replacement Tyres
Replacement tyres should be of a similar specification. Fitting tyres of a different rating may affect accuracy of speedometer readings, and plated weight ratings. Do not mix crossply and radial tyres. It is recommended that tyres from different manufacturers are not mixed on a vehicle.

NOTE
When fitting twin rear wheels, ensure that the tyre valves are positioned 180° apart.
Towing

The vehicle should be towed only from the towing eye. The towing eyes should be screwed into both of the tapped sockets in the rear or front crossmember. A rigid tow bar should be used, utilising both towing eyes.

CAUTION
It is essential to disconnect and support the propshaft at the rear axle before attempting to tow the vehicle.

An air coupling is located on the front of the vehicle to provide a means of supplying air to the braking system while the vehicle is being towed.

Where there is no means of supplying air to the vehicle being towed the parking brake (spring brake) must be released.

WARNING
In this condition the brakes are completely inoperative. Towing must be carried out using a rigid tow bar.

Releasing Parking Brake

- Place chocks behind and in front of the wheels.
- Remove the cap from the end of both rear spring actuators.
- Unscrew the release bolts of both actuators until the brake shoes release from the drums.
- When resetting release bolts, tighten to 35ft lbs (47Nm) in a clockwise direction.
- Replace the spring brake actuator caps.

CAUTION
With the wheels chocked the release bolts must be reset as soon as repairs have been completed otherwise the parking brake will remain inoperative.
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<td>Lubrication Chart, 61</td>
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