TEREX®

TA9 & TA10
Tier 4 Interim

SITE DUMPER

Operations Manual

Issue Date: 01-June-2014
Language: English
Revision No.: 1.2
Reference No.: 1203
Original Instructions

WORKS FOR YOU.™

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Serial Number	
Year of Construction	
Date of Delivery	
Dealer Stamp	
Notice	

Record of Revisions

Revision Number	Reason for Change	Date
1.0	Original Issue	1-October-2013
1.1	Legal Entity changed	1-January-2014
1.2	Instructions for starting after fuel filter replacement added	1-June-2014

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Table of Content

1 Introduction

1.1 Important Information

TEREX appreciates your choice of our product for your application. Our number one priority is user safety which is best achieved by our joint efforts. We feel you can make a major contribution to safety if, you as the machines user:

- Comply with all the relevant National Laws and Local Regulations.
- Read, Understand and Follow the instructions in this and any other manuals supplied with this machine.
- Use Good, Safe Work Practices in a common sense way.
- Only Use Trained Operators to operate the machine who are directed by informed and knowledgeable supervision. The operator of this machine must be a competent person who has received thorough training in the use of this type of equipment.

If there is anything in this manual which is not clear or there is information which you think should be added, contact the Manufacturers Service Department who will deal with your problem or request.

Machine LEFT and RIGHT HAND. All references in this manual to LEFT and RIGHT are as viewed from the Operating Position (Operators Seat) with Operator facing the skip.

We reserve the right to make improvements to these machines without incurring any need to change these operating instructions.

Any modification to this machine which has not been approved by the Manufacturer in writing is prohibited and immediately invalidates the Manufacturers warranty.

1.2 Safety Alert System

The Safety Alert System identifies important safety messages in this manual. When you see this symbol, adhere to all safety messages that follow to avoid possible injury or death.

1.3 Intended Use

The machine has been designed and tested to carry out the function of transporting various free flowing materials. If used correctly, it will provide an effective means of transportation and meet the appropriate performance standards and regulations.

Use of this product in any other way is prohibited and contrary to its intended use

1.4 Operations Manual

This manual is a guide to the safe operation of the machine and the layout and position of all controls. It also contains details of checks and procedures within the scope of the operator to keep the machine in a safe and serviceable condition.

This manual is not a training manual. Contact your local dealer or representative for details of suitable training courses.

Any person who intends to use this equipment must read this operations manual carefully before operating the machine.

Make sure this operations manual is kept with the machine at all times and is in good condition - replace the manual immediately if it becomes dirty, damaged or has been lost. The manual holder is located in the back of the seat (Figure 1.1) and is lockable

Replacement or additional copies of this publication can be ordered from your dealer.

Figure 1.1 - Operations Manual Location

1.5 Identification Plate

The Vehicle Identification Number is recorded on a plate (Figure 1.2) located on the right hand side of the rear chassis frame.

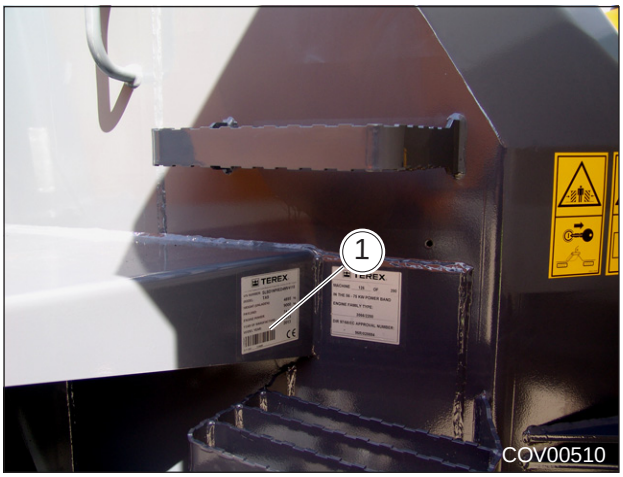

Figure 1.2 - Vehicle Identification Number Plate Location

1. VIN Plate

You are advised to keep a record of your machines VIN number and the information recorded on the plate in a safe place.

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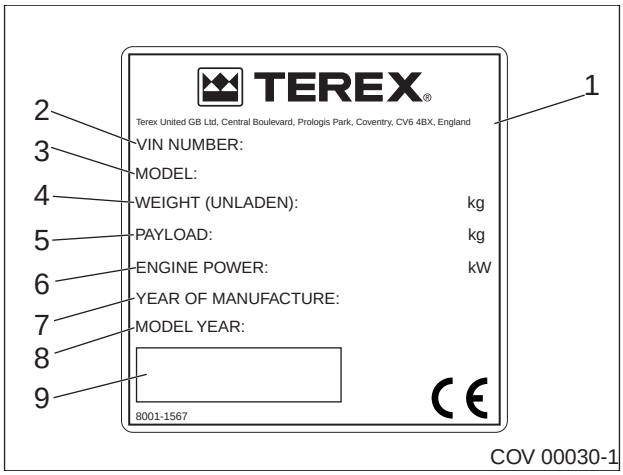

Figure 1.3 - Vehicle Identification Plate Information

1. Company Address
2. Vehicle Identification Number
3. Machine Model
4. Weight (Unladen)
5. Maximum Payload
6. Engine Power
7. Year Of Manufacture
8. Model Year
9. Bar Code

1.6 Warranty Registration

Your dealer will have registered you as the owner with Terex at the time of sale. Should you have any queries please consult your dealer in the first instance.

1.7 Warranty

Full terms and conditions of the machines warranty will be found in the warranty certificate included in or accompanying this manual.

1.8 Service and Replacement Parts Enquiries

Please state the vehicle type and the Vehicle Identification Number (VIN) when making enquiries or orders and in all written correspondence.

1.9 Official Documents European Community Only

(1) CE mark

The Machinery Safety directive is intended to harmonise all the machinery safety regulations throughout the community so that there will be no technical barriers to trade.

Compliance with the essential safety requirements of the EEC directives 2006/42/EC (machinery), 2000/14/EC (Noise) and 2004/108/EC, permits companies to CE mark their products.

The directive affects almost every equipment supplier and user in the community and in particular, applies to this type of machine.

The regulations require that potential hazards from machinery are properly addressed and guarded against.

The EC declaration of conformity is a requirement of CE marking. The declaration for this machine (Figure 1.4) follows.

TEREX

Contents of the EC Declaration of Conformity

2006/42/EC Machinery Directive

Manufacturer: Terex GB Limited
Central Boulevard
Prologis Park
Keresley End
Coventry
CV6 4BX
United Kingdom

Name of Person to Compile Technical File: Steve Price

Address of Person to Compile Technical File: Terex GB Ltd

Generic Denomination:	Compact Dumper
Machine Function:	Earth-moving machinery
Model / Type :	TA9 TA10
Serial/VIN number	
Commercial Name:	Same as Model /Type

Terex GB Limited hereby declares that the above piece of machinery is in conformity with the relevant provisions of the Machinery Directive 2006/42/ EC

Terex GB Limited hereby declares that the above piece of machinery is in conformity with the provisions of the following other EC-directives: Noise - Equipment Used Outdoors (2000/14/EC), Emissions - Non-Road Engines (97/68/EC) and Electromagnetic Compatibility (2004/108/EC).

Terex GB Limited hereby declares that the following European standards have been used:

EN474-1 & EN474-6

Place of Issue: Coventry, United Kingdom

Date of Issue:

Empowered signatory

Neal Nowick
General Manager

Figure 1.4 - Copy of CE Certificate

1.10 California Proposition 65

California (USA) state law stipulates that the manufacturers of machines operated within its borders must provide a clear warning to customers regarding exposure to substances commonly associated with the machine that are recognized by the state as harmful. Terex complies with this requirement by providing the following information.

California Proposition 65
Warning: This product contains and/or emits lead and lead compounds, diesel engine exhaust, and used engine oil, chemicals known to the state of California to cause cancer

California Proposition 65
Warning: This product contains and/or emits lead, lead compounds and carbon monoxide chemicals known to the state of California to cause birth defects or other reproductive harm

1.11 Bulletin Compliance

- You must take action and comply with any safety bulletins transmitted to you by your dealer or by Terex.
- Make sure the details of ownership of the machine are recorded by your dealer and the information is accurate and up to date. Failure to do so may result in critical safety information being withheld.
- Bulletins can only be issued to the recorded owner or keeper of the equipment. It is your responsibility to make sure that your dealer or Terex has your correct details.
- If you are the new owner contact your local dealer with your details and quote the machines VIN number to make sure you receive any future bulletins or updates.

1.12 Contacting the Manufacturer

At times it may be necessary to contact the manufacturer of this machine. You must supply the Model and VIN Number of the machine together with your name and contact details.

You must contact Terex for:-

- For any product modifications to your machine.
- To report an accident involving Terex equipment.
- Product applications and safety.
- Standards and regulations compliance.
- To report change of ownership or ownership details (if not reported to a Terex dealer).

1.13 Transfer of Machine ownership

If you sell or otherwise dispose of your machine you must tell your dealer or otherwise Terex.:-

- The name and address of the new owner
- The model and VIN number of the machine
- The date of transfer or disposal.

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2 Safety

This manual is designed as a guide to the Machines Controls, Operation and Maintenance. IT IS NOT A TRAINING MANUAL

2.1 Safety Alert System

The Safety Alert Symbol is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death

2.2 ANSI Hazard Classification System

(1) Only Applicable to ANSI Safety Signs)

ANSI safety signs are only fitted to machines used in the US, Canada, Australia and New Zealand .

A multi-tier hazard classification system is used to communicate potential personal injury hazards.

The following signal words used with the safety alert symbol indicate a specific level of severity of the potential hazard

All are used as attention getting devices on safety signs fixed to the machinery to assist in potential hazard recognition and prevention

DANGER

DANGER - (Always used with a safety alert symbol and white letters on a red background) Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING - (Always used with a safety alert symbol and black letters on an orange background) Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION - (Always used with a safety alert symbol and black letters on a yellow background) Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

(2) Property Damage

NOTICE

NOTICE - (Used without a safety alert symbol and white italic letters on a blue background) Is used to address practices not related to personal injury

(3) Procedure

PROCEDURE

PROCEDURE - (Used without a safety alert symbol and black letters on a green background). This indicates a procedure that must be followed step by step for safe operation. Make sure all safety notes have been considered before beginning the procedure.

2.3 Personal Protective Equipment (PPE)

The following symbols indicate the personal protective equipment that must be used at all times when operating this equipment. Operators must not wear rings, scarves, open jackets and must make sure that all loose clothing is tightly secured. Long hair must be restrained.

	Protective Helmet	A protective helmet must be worn at all times to prevent injury from falling objects		Safety Boots	Safety boots must be worn at all times when operating this equipment
	Ear Defenders	Ear protection must be worn at all times when operating or near this equipment		Safety Glasses	Safety glasses must be worn at all times to prevent eye injury from flying objects
	High Visibility Clothing	High visibility clothing must be worn at all times when operating this equipment.		Seat Belt	The seat belt must be worn at all times when operating this equipment

The following symbols indicate the personal protective equipment that must be worn when site conditions dictate.

	Protective Gloves	Protective gloves must be worn when necessary to prevent injury from sharp objects.		Face Shield	A face shield must be worn when conditions dictate to prevent eye or facial injury from flying objects
	Dust Mask	A dust mask must be worn when site conditions dictate		Respirator	A respirator must be worn when site conditions dictate
	Protective Clothing	Protective clothing must be worn when site conditions dictate			

The following symbols indicate the personal protective equipment that must be used when performing maintenance on the machine.

	Safety Glasses	Safety glasses must be worn at all times to prevent eye injury from flying objects.		Safety Boots	Safety boots must be worn at all times to prevent injury.

The following symbols indicate the personal protective equipment that must be used when site conditions dictate when performing maintenance on the machine.

	Protective Clothing	Protective clothing must be worn when conditions dictate.		Protective Gloves	Protective gloves must be worn when conditions dictate
	Dust Mask	A dust mask must be worn when conditions dictate		Face Shield	A face shield must be worn when conditions dictate to prevent eye or facial injury from flying objects

2.4 General Safety Information

Consult your dealer or distributor for details of training courses.

All the time you are working on or with the machine you must consider any possible hazards and how to avoid them.

Only authorised persons must be allowed to operate this machine.

Unauthorised use of this machine may invalidate your insurance.

Operators and maintenance staff must always comply with the following precautions. These precautions are given here for your protection. Review them carefully before operating the machine and before performing general maintenance or repairs. Supervising staff must develop additional precautions relating to the specific work area and local safety regulations.

- Before operating the machine make sure you have had proper training and are fully conversant with the machine and its operation - If in Doubt ASK!
- Make sure you, and anyone else who uses the machine, have been trained to operate it correctly and are physically and mentally fit.
- Make sure all bystanders are made fully aware of the safety instructions associated with this machine and are kept well clear of the operating area.
- Read this instruction manual carefully before operating the machine. Make sure this instruction manual is kept with the machine at all times and is in good condition - replace the manual immediately if it becomes dirty, damaged or lost.
- Read and understand all safety signs before operating the machine.
- Always make sure there is adequate ventilation around the machine. Never run the engine in an enclosed area without good ventilation or next to combustible materials.
- Stop the engine before refuelling, if there is a spillage mop it up and do not start the engine until it has been done.

- The exhaust gets extremely hot. Do not place anything on top of it and keep all combustible materials clear. Do not attempt any maintenance on a hot engine.
- Be familiar with all prohibited work areas such as excessive slopes and dangerous terrain conditions.
- Check your local laws and regulations, the engine may require a spark arrester etc.
- If the machine is to be used on the public highway or at night lighting in accordance with national requirements of the country concerned must be fitted.
- Before performing any maintenance on the machine, place a warning tag on the machine to prevent accidental start-up and remove the start key and battery isolator. Put the locking bar into position to prevent the front and rear chassis moving and creating a crushing zone.
- Do not inspect or clean the machine with the engine running.
- Make sure all guards or shields are in place before using the machine.
- Before carrying out maintenance on the hydraulic system make sure the hydraulic fluid is cool and there is no residual pressure in the hydraulic circuit - hydraulic fluid leaking under pressure can penetrate the skin.
- Personal Protective Equipment must be used as specified on *pages 2 - 2 and 2 - 3.*
- Establish a training programme for all operators to make sure they are fully familiar with its operation.
- Do not operate the machine if it is damaged, improperly adjusted or not completely and correctly assembled.
- Always use driveways approved by site management when driving around the site.
- Do not work under a raised skip unless the props/supports are fitted and locked in position.
- Only fill skip with free flowing loads.
- When manoeuvring or driving the machine with the skip raised take extreme care as forward visibility will be restricted.
- Do not drive around the site with the skip raised.
- Do not drive the machine on the public highway with the skip in the fully tipped position.
- Do not operate the machine if you are unfit to do so because of alcohol or drugs etc.
- Make sure the ROPS is not damaged and has no unauthorised modifications.
- The operator must get off machine when loading the dumper skip.
- Do not drive on slopes or gradients that exceed the safe limits stated for this machine in this manual.
- Do not carry passengers.
- Keep footplates and steps free from dirt, oil, snow, ice etc.
- Check seat belts daily. YOU MUST ALWAYS WEAR A SEAT BELT WHEN OPERATING THE MACHINE.

- Do not remove the radiator cap when the engine is hot. Do not add coolant to a hot engine.
- Always park machine correctly on firm, level ground where it will not cause an obstruction or danger - chock the wheels if necessary. DO NOT LEAVE THE ENGINE RUNNING or the start key in the start switch.
- Before taking the machine on public roads make sure that the machine complies with all road traffic regulations and obey all driving laws.
- Tyre changes and repairs to punctured tyres MUST only be carried out by fully trained operatives using the correct equipment. The manufacturer of this machine recommends a competent firm is employed to carry out these tasks.
- If the machine is fitted with ROPS and the machine should roll over, the Operator must grip the steering wheel firmly allowing the seat belt to restrain him/her in the seat until the machine comes to rest.
- In the event of an electrical/lightening storm park the machine in a safe place, dismount and seek shelter
- If anyone has any concerns with any safety aspect of the machine the problem must be reported and the machine must not be used until the safety concerns have been rectified or an authorised person has checked and satisfied the site personnel the machine is safe to use.

2.5 Seat Belt

A seat belt is provided for operator safety. It is important that the seat belt is inspected and checked regularly *See Maintenance Section.*

Failure to properly inspect and maintain a seat belt can result in death or serious injury.

The seat belt MUST be worn at all times when operating this equipment.

2.6 ROPS

A ROPS (Roll Over Protective Structure) is provided for operator safety.

Although ROPS appear to be relatively maintenance-free, regular periodic inspections to make sure ROPS are damage free and thus capable of functioning in a roll over cannot be over emphasized.

Through periodic inspections, cracks, loose bolts, damage, and other normal wear and tear related problems can be eliminated before they become serious.

Proper inspection and maintenance procedures can make sure that ROPS will perform the life saving function they are designed for and expected to do.

Details on the inspection and maintenance of the ROPS will be found in the *Maintenance Section*.

Do NOT modify or attach items to the ROPS without the manufacturers approval.

Do NOT use the ROPS as an attachment point for towing or pulling equipment.

2.7 Lockout and Tag Out

To prevent unauthorised starting of the machine, before any maintenance you must always:-

- Apply parking brake.
- Place transmission in Neutral
- Remove start key.
- Turn battery isolator to OFF and remove key
- Place warning notice in a prominent position warning others not to attempt to start or drive the machine.

2.8 Hydraulic Fluid

Fine jets of hydraulic fluid under pressure can penetrate the skin.

Relieve all pressure before dismantling any hydraulic system.

Do not use your fingers to check for small leaks or expose uncovered areas of your body to leaks.

Use a piece of cardboard or thick paper to check for leaks.

Fluid injected into the skin must be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene will result

2.9 Fluid Levels

Make sure the machine is on firm, level stable ground. It must not be in a dangerous position or causing an obstruction. Apply the parking brake. Place gear lever is in neutral and the make sure engine is stopped before checking ALL fluid levels.

2.10 Battery Electrolyte

Contact with battery acid can cause serious burns, blindness or even death. Protective clothing, gloves and a face shield must be worn at all times when handling or working on a battery.

(1) Skin Exposure

If the skin is exposed to battery electrolyte, the affected skin must be washed immediately with running water.

If burning is severe seek immediate medical attention.

(2) Eye Contact

If eyes are exposed to battery electrolyte, wash eyes with running water and obtain immediate professional medical attention.

(3) Battery Charging

When charging the battery hydrogen gas is produced.

Make sure the area is well ventilated to prevent the risk of explosion from a build up of hydrogen.

(4) Frozen Battery Electrolyte

Batteries with frozen electrolyte may explode if used or charged.

Never 'jump start' a machine with a frozen battery.

To help prevent freezing, keep the battery fully charged.

Do Not Use a Machine with Frozen Battery Electrolyte

2.11 Fires

Using water to extinguish an oil fire could spread the fire or give you a shock from an electrical fire.

Use a carbon dioxide, dry chemical or foam extinguisher whilst waiting for the fire brigade.

Keep fire extinguisher seviceable and have it checked regularly

Do Not Use Water to Extinguish a Machine Fire

2.12 Water Cooled Engines

Water cooled systems operate under pressure to increase the boiling point of the coolant. Therefore, the coolant temperature may be greater than boiling water at standard atmospheric pressure (100ºC).

Never Maintain Cooling System when the Engine is HOT.

2.13 Lubricants

Lubricants should be handled in accordance to the lubrication manufacturers recommended practices.

Whenever handling oil products, maintain good standards of care plus personal and plant hygiene.

For details of these precautions we advise you to read the relevant publications issued by your local health authority.

- Avoid contact with lubricants. Wear oil resistant gloves when performing maintenance.
- ALWAYS keep lubricants out of reach of children.
- NEVER store lubricants in open or unlabelled containers.

(1) New Oil

There are no special precautions needed for the handling or use of new oil other than the normal care and hygiene practices.

(2) Old Oil

Used engine crankcase lubricants contain harmful contaminants. In laboratory tests it was shown used engine oils can cause skin cancer and reproductive harm. Avoid inhalation of vapours, ingestion and prolonged skin contact with used engine oils. Dispose of used oil in accordance with local environmental regulations.

Observe the following precautions.

- Avoid prolonged, excessive or repeated skin contact with used engine oil.
- Apply a barrier cream to the skin before handling used engine oil.
- Note the following when removing engine oil from the skin.
- Wash skin thoroughly with soap and water. Using a nail brush will help.
- Use special hand cleansers to help clean dirty hands.

- Never use petrol, diesel fuel or kerosene.
- Avoid skin contact with oil soaked clothing.
- Do not keep oily rags in pockets.
- Wash dirty clothing before reuse.
- Throw away oil soaked shoes.

(C) First Aid - Oil

(1) Swallowing Oil

If oil is swallowed, do not induce vomiting.

Get Medical Advice.

(2) Skin Contact

In the case of excessive skin contact, wash with soap and water.

(3) Eye Contact

In the case of eye contact, flush with water for 15 minutes. If the irritation persists, get medical attention.

2.14 Oil or Fuel Spillage

Absorb with sand or a locally approved brand of absorbent granules. Scrape up and dispose of in a chemical disposal area.

2.15 Gradients

(1) Ascending or Descending

When ascending or descending a gradient with a dumper the skip MUST ALWAYS face the top of the incline. Always drive up and reverse down inclines (Figure 2.1). Do not attempt to drive down inclines there is a serious risk of overturning.

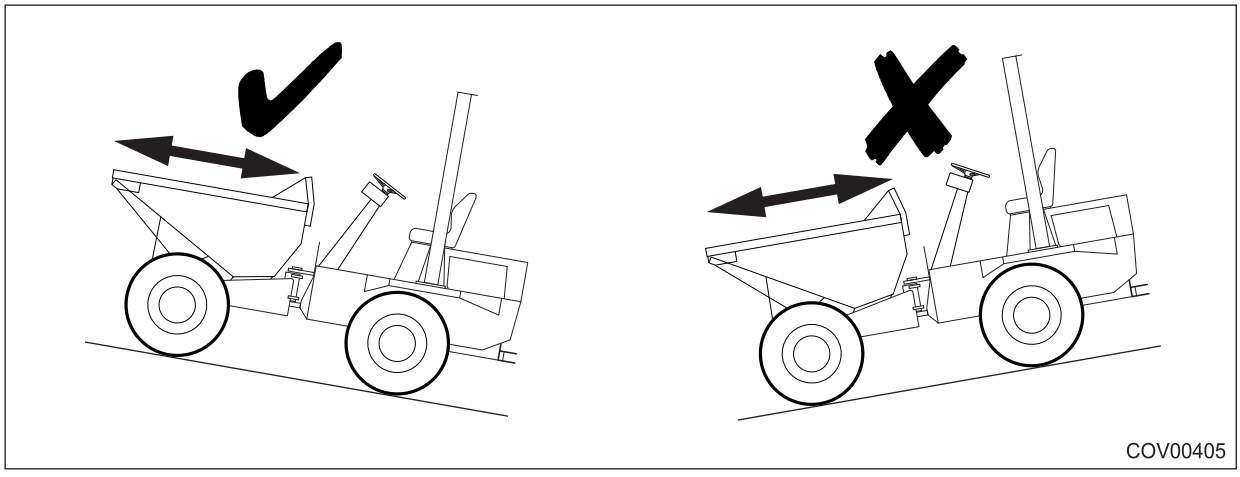


Figure 2.1 - Ascending or Descending Gradients

(2) Maximum Gradient

The maximum gradient - X - (Figure 2.2) permissible for this machine is 20% (11º, 1 in 5) Do not attempt to exceed the machines gradient capabilities.

It should be noted that adverse ground conditions will limit the machine's gradient capabilities.

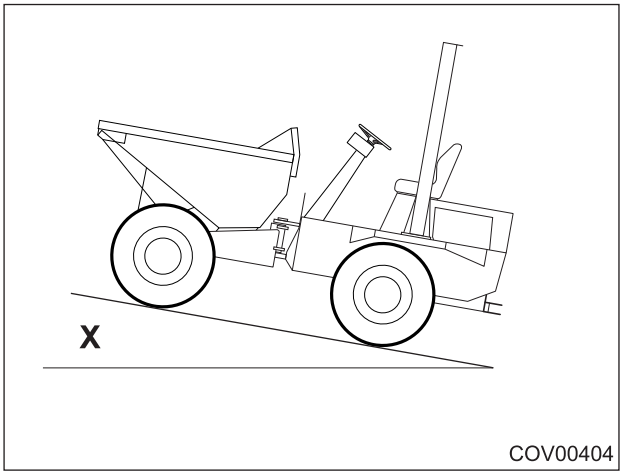


Figure 2.2 - Maximum Gradient

(3) Crossing a Slope

Muddy, slippy ground conditions will adversely affect the ascending and descending capabilities of the dumper.

However, these ground conditions can be even more hazardous when crossing a slope. Greater care must be taken when crossing sloping ground to prevent the machine sliding sideways out of the operators control.

The maximum slope - Y - (Figure 3.3 Crossing a Slope) is 20% (11º, 1 in 5). Do not attempt to exceed this figure.

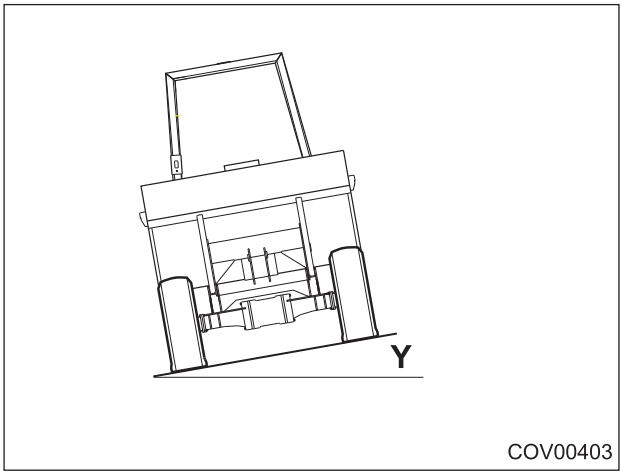


Figure 3.3 - Crossing a Slope

2.16 Responsibilities

Site management must identify possible dangers and make arrangements to eliminate them.

Site management are responsible for planning driveways around the site which will prevent the machine from experiencing excessive slopes, soft ground or having to drive over edges

especially at an angle etc. The driveways must also avoid any other possible dangers e.g. overhead cables, work areas etc.

The operator must make sure the machine is driven correctly at all times especially with regards to speed, overloading, only using the machine for the intended task, not driving dumpers with a lift-skip in the raised position etc.

2.17 Overturning

If the machine begins to overturn the operator must grip the steering wheel firmly allowing the seat belt to restrain him/her in the seat until the machine comes to rest. Do not try to jump clear of the machine when it is overturning. Grip the steering wheel and remain in the seat until the machine comes to a rest. The ROPS will provide protection in the event of a roll over.

2.18 Safety Signs

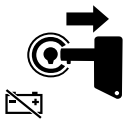
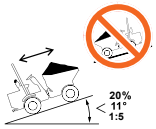
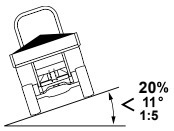
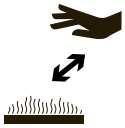
Safety signs are fitted to the machine to warn of possible dangers and MUST be replaced immediately if they become unreadable or lost.

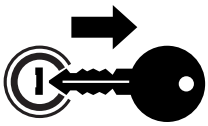
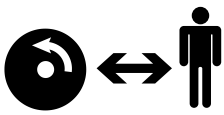
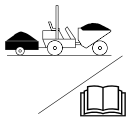
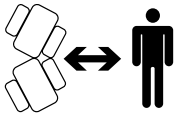
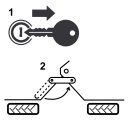
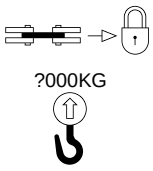
If the machine is repaired and parts have been replaced on which safety signs were fixed new safety signs must be fitted before the machine is put into service. Use mild soap and water to clean safety signs -DO NOT use solvent based cleaners as they will damage safety sign material.

ALL safety signs listed must be present on the machine and must be legible.

(1) Safety Sign Symbols

Table 2.1 - Description of Safety Symbols

HAZARD	AVOIDANCE	DESCRIPTION
		Hazard : Attention, safety involved Avoidance: Read and understand operator's manual before using the equipment
		Hazard : Attention, safety involved Avoidance: Remove start key and isolate battery before maintaining the machine
		Hazard : Fall/Crush Avoidance: Do not carry passengers or allow people to ride on the machine
		Hazard : Skin Injection from High Pressure Fluid Avoidance: Use cardboard or wood to check for leaks.
		Hazard : Crush during Roll over Avoidance: Only drive up and reverse down inclines of 11° or less.
		Hazard: Crush during Roll over Avoidance: Do not drive across slopes exceeding 11°.
		Hazard : Crushing Avoidance: Insert skip cylinder safety lock/ support
		Hazard: Burn Avoidance: Keep clear of hot surfaces

HAZARD	AVOIDANCE	DESCRIPTION
		Hazard : Entanglement Avoidance: Keep away from fan and belt.Turn off engine and remove key before servicing.
		Hazard : Crushing Avoidance: Stay clear of machine
		Hazard : Machine Instability. Avoidance: Read operators manual
		Hazard : Crush during Roll Over Avoidance: Always wear a seat belt when operating the machine
		Hazard : Crush Zone Avoidance: Stay clear of machine
		Hazard : Crush Zone Avoidance: Turn the machine off and remove the key. Fit articulation lock
		Hazard : Crushing Avoidance: Fit articulation lock before lifting Use equipment rated for lifting the stated weight.

(2) Safety Sign Location - ISO

Figure 3-4 - Safety Sign Location - ISO

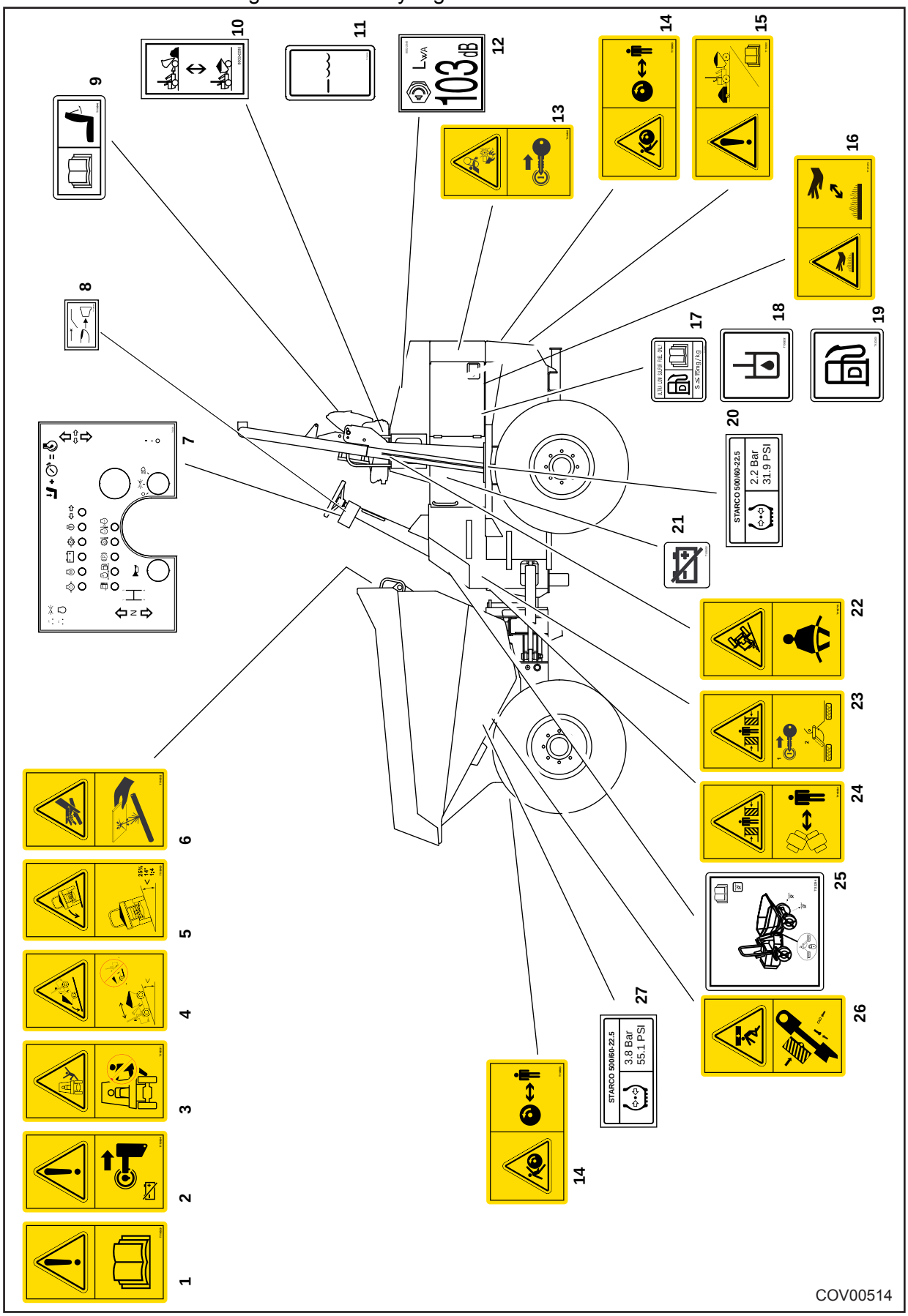


Table 2 .2 - Safety Signs - ISO

Item	Decal Description	Remarks
1	Safety - Read Instruction Book	
2	Safety - Remove Start Key Before Maintenance	
3	Safety - Fall Hazard - No Passengers	
4	Safety - Gradient Hazard	
5	Safety - Tip Over Hazard	
6	Safety - High Pressure Oil Leaks	
7	Information - Dashboard Symbols	
8	Information - Circuit Breaker Reset	
9	Information - Instruction Book Location	
10	Information - Skip Controls	
11	Information - Coolant Level	
12	Safety - Sound Level	
13	Safety - Entanglement Hazard	
14	Safety - Crush Hazard	
15	Information - Towing Hazard	
16	Safety - Hot Surface	
17	Information - Fuel Specification	
18	Information - Hydraulic Oil Filler Point	
19	Information - Diesel Filling Point	
20	Information - Tyre Pressure Rear	
21	Information - Battery Isolation	
22	Safety - Crush Hazard - Wear Seat Belt	
23	Safety - Crush Hazard - Fit Articulation Lock	
24	Safety - Crush Hazard	
25	Information - Tie Down Scheme	
26	Safety - Crush Hazard - Fit Skip Prop	
27	Information - Tyre Pressure Front	

(3) Safety Sign Location - ANSI

Figure 3.5 - Safety Sign Location - ANSI

Table 2.3 - Safety Signs - ANSI

	Remarks

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3 Technical Data

3.1 Dimensions

(1) TA9 & 10

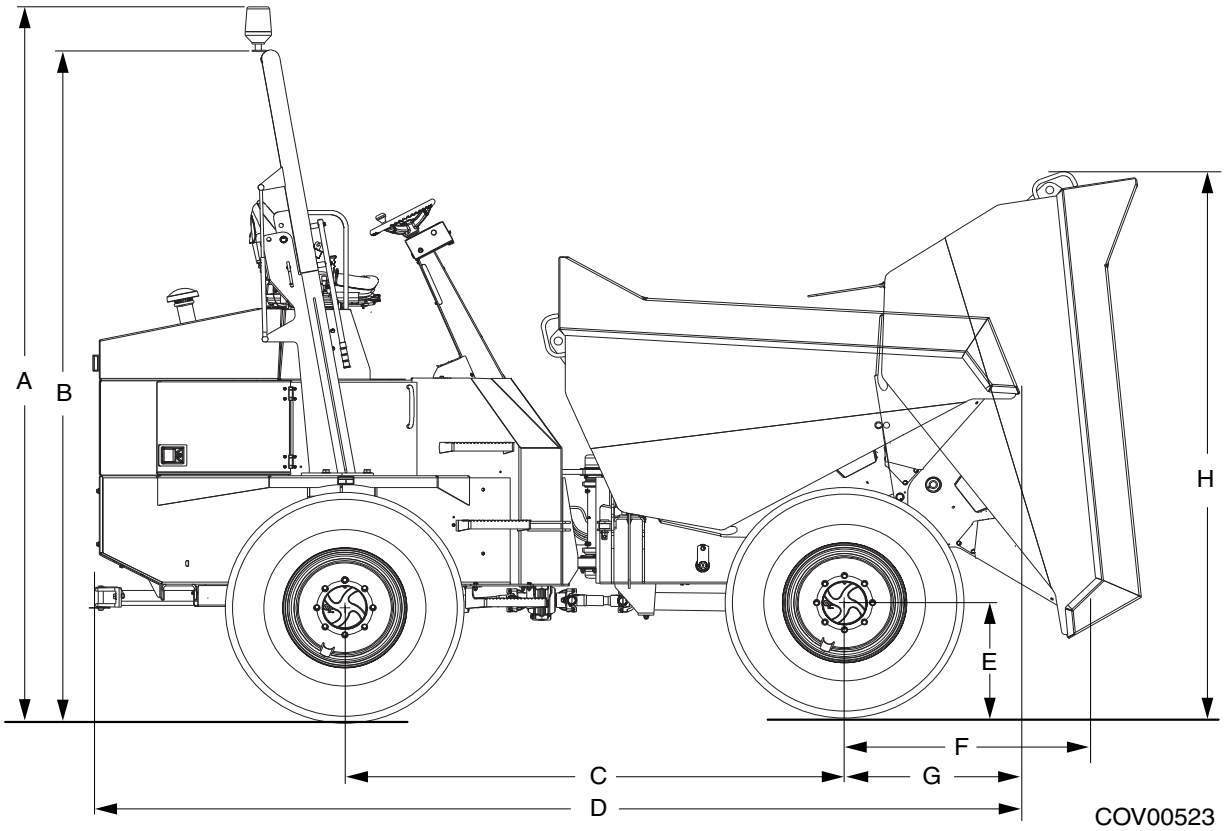

Figure 3.1 - Dimensions

Table 3.1 - Dimensions

Dimensions mm (in)										
Model	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**Overall Width**	**Weight (Wet) kg**
TA9	3635 (143.1)	3416 (134.4)	2450 (96.4)	4484 (176.5)	560 (22.0)	1202 (47.3)	812 (31.9)	2773 (109.1)	2502 (98.5)	4770 (10,516 lb)
TA10	3635 (143.1)	3416 (134.4)	2450 (96.4)	4530 (178.3)	537 (21.1)	1219 (47.9)	858 (33.7)	2810 (110.6)	2550 (100.3)	

3.2 Turning Circle

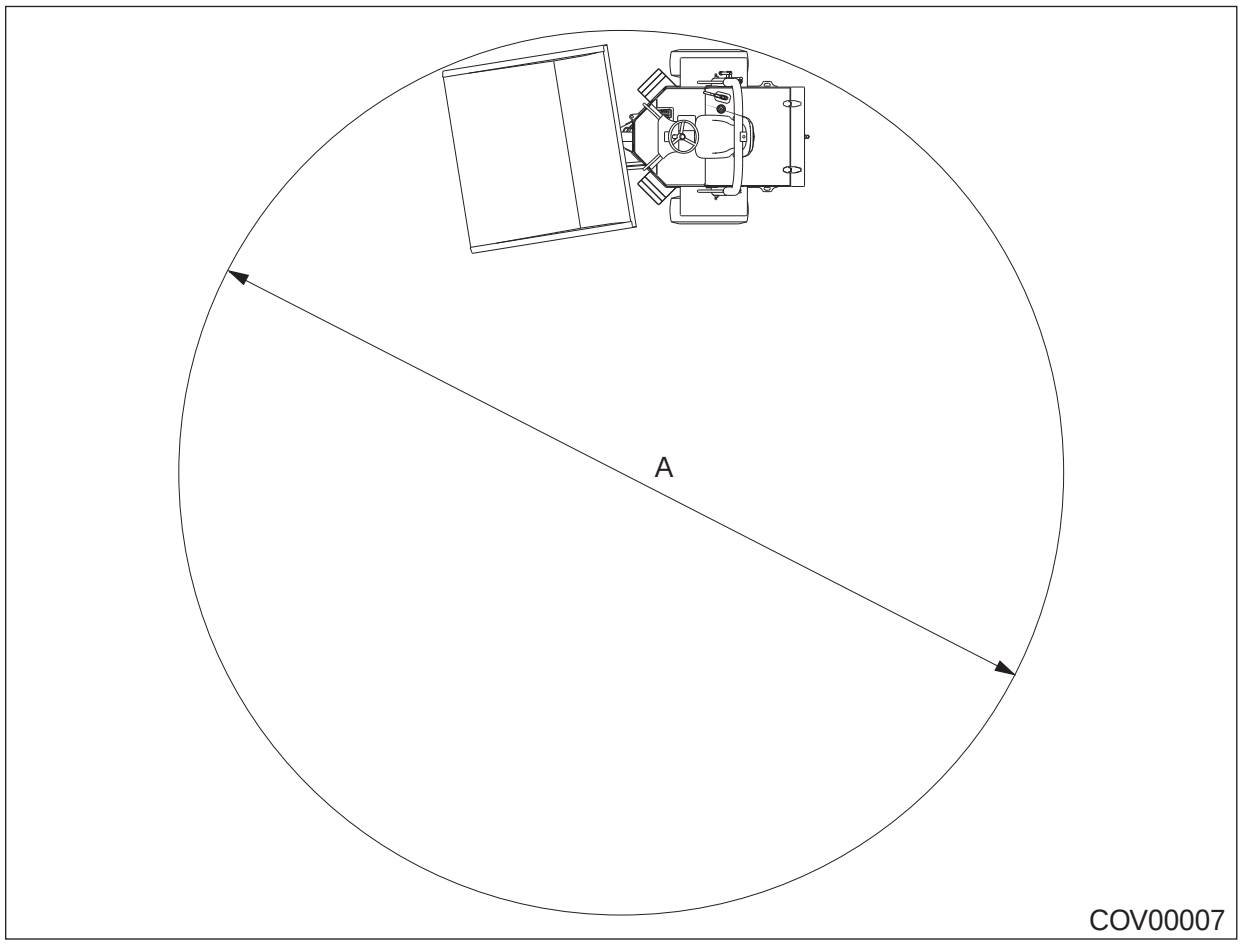

Figure 3.3 - Turning Circle

Table 3.3 - Turning Circle

Turning Circle - mm (in)		
	TA9	TA10
A	11988 (472.0 in)	12022 (473.3 in)

3.3 Data

Table 3.4 - Data

Data		
	TA 9	**TA 10**
Engine		
Manufacturer/Model	Deutz TCD3.6 L4	
Capacity	3.6 Litre	
Rated Power	90kW at 2200 rpm	
Maximum Torque	480Nm at 1600 rpm	
Oil Capacity	9.0 Litres (2.37 US Gal.)	
Cooling System Capacity	14.4 Litres (3.8 US Gal.)	
Gearbox		
Manufacture/Model	ITL SS620	
Type	Synchro Shuttle	
Gears	4 Forward/4 Reverse	
Machine Speed in Gears (kph)		
1st	5.58	
2nd	8.97	
3rd	16.61	
4th	29.30	
Oil Capacity	13.0 Litres (3.4 US Gal)	
Transfer Box		
Manufacturer/Model	ITL	
Type	TG300	
Oil Capacity	0.45 Litres (0.1 US Gal)	
Front Axle		
Manufacturer/Model	DANA	
Type	112	
Oil Capacity - Axle	7.0 Litres (1.85 US Gal.)	
Oil Capacity - Hubs	2.7 Litres (0.71 US Gal.)	
Rear Axle		
Manufacturer/Model	DANA	
Type	112	
Oil Capacity - Axle	7.0 Litres (1.85 US Gal.)	
Oil Capacity - Hubs	2.7 Litres (0.71 US Gal.)	
Fuel System		
Type	Diesel	
Tank Capacity	65.0Litres (17.1 US Gal)	
Hydraulic System		
Tank Capacity	50.0 Litres (13 US Gal)	
Pump	Casappa PLP20.25S0-0751-HBH/GC-N-2P	
Flow	59.8 L/Min (15.7 US Gal/Min)	
Working Pressure	172 bar (2494 psi)	210 bar (3045 psi)

Table 3.4 - Data (Continued)

Data		
	TA9	**TA10**
Electrical System		
Type	12v Negative Earth	
Alternator	Belt Driven	
Output	95 Amps	
Battery	Varta Silver 100AH	
Braking System		
Primary	Hydraulic Multi Plate In-board Wet Disc	
Parking	Mechanical (Disc on output shaft of transmission)	
Brake Reservoir	1.20Litres (0.31 US Gallons)	
Wheels & Tyres		
Manufacturer	Starco	Starco
Tyre Size	500/60 x 22.5	500/60 x 22.5
Pressure - Front	3.8 bar (55 psi)	3.8 bar (55 psi)
Pressure - Rear	2.2 bar (32 psi)	2.2 bar (32 psi)
Wheel Nut Torque	630Nm (465 ft/lbs)	
Skip Capacity		
Maximum Safe Payload	9000 kg (19,800 lbs)	10,000 kg (22,000 lbs)
Water - Level	2064 litres (2.7 $yd.^3$)	2446 litres (3.2 $yd.^3$)
Struck Level	3899 litres (5.1 $yd.^3$)	4128 litres (5.4 $yd.^3$)
Heaped	4587 litres (6.0 $yd.^3$)	5046 litres (6.6 $yd.^3$)

3.4 Noise Emissions

Table 3.5 - Noise Emissions

Model	Declared Single-Number Noise Emission Values to ISO 4871	
	A- rated sound pressure level at operator station	A - rated sound power of machine
	LpAd	LWAd
TA9	86dB	103dB
TA10	86dB	103dB

Note: The noise figures are only applicable for European CE Markets only.

3.5 Vibration Levels

Table 3.6 - Hand/Arm Vibration

	Operation	Value	Uncertainty
Hand Arm Vibration as defined in EN474-1	All operations	<2.5m/s2	N/A
Whole body vibration values as defined in ISO/TR 25398	Work Cycle	0.529 rms	0.264m/s2

Note: these values are for guidance only. Actual work site, operation and operator characteristics will have a large influence on actual values for specific circumstances.

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4 Description

4.1 TA Dumper - Forward Tip Skip

Figure 4.1 - TA9 - Front

4.2 TA Dumper

Awaiting Photograph

Fig 4.2 - TA10

4.3 Description

This range of 4 wheel drive site dumpers have been designed to provide the greatest degree of component standardisation possible, thus providing the user with simplified servicing requirements.

There are 2 models in the range; the TA9 (9 tonne) and TA10 (10 tonne).

(1) Skip

Both models in the range have a load carrying skip located over the front axle, ahead of the driver and discharge their load to the front of the machine.

(2) Engine

The machine is powered by a Deutz TCD3.6 L4 3.6 Litre Tier 4 interim compliant diesel engine. The engine is positioned at the rear of the machine behind the driver.

All machines are fitted with electric starting; a separate key operated switch is located adjacent to the steering wheel.

(3) Chassis

The chassis is of the two part articulating type having a centre pivot which articulates in both vertical and horizontal planes. Front and rear axles are bolted directly to the chassis.

(4) Steering

Steering of the dumper is by an 'Orbitrol' hydrostatic steering unit, that powers a single hydraulic cylinder connecting the front and rear chassis units.The steering unit is operated by a conventional steering wheel.

The steering wheel is fitted with a "spinner" knob to aid manoeuvring on the worksite. Under no circumstances must the knob be used to control the machine when it is used on the public highway. If possible the knob should be removed from the steering wheel before highway travel.

In the event of hydraulic failure the steering will still operate but under these circumstances steering wheel loads are high and the dumper must only be driven at slow speeds.

(5) Transmission

A torque converter and Synchro Shuttle 4 speed gearbox are fitted. A transfer box transmits power to the front and rear axles.

(6) Braking System

Totally enclosed oil immersed brakes are fitted within the axles. These are self adjusting and have multiplate sintered discs. The brakes are applied hydraulically by a foot pedal located on the floor plate.

A separate parking brake operates on a disc on the output shaft of the gearbox. This is controlled by an over centre type lever located on the right hand side of the operators seat.

(7) Electrical System

A 12v negative earth electrical system is fitted. An isolator switch with removable key is fitted for added safety and security.

The machine is available with full lighting to comply with current EU/ISO road traffic regulations.

4.4 Skip

The site dumper is basically a load carrier and the skip can be used for a multitude of building/ contracting site functions, but essentially it is used for carrying free flowing materials from excavations or demolitions and general site building activities.

The skip is raised and lowered by two double acting hydraulic cylinders mounted between the front chassis and the underside of the skip and controlled by joystick operated control valve.

The joystick control for skip operations is positioned to the right of the drivers seat.

(1) Raised Skip

As a safety aid when working on the machine a support is provided to lock the skip in the raised position when performing maintenance or repairs on the machine This prevents the skip from lowering accidentally and causing injury. Do not reach or work under a raised skip without the support fitted.

4.5 Chassis

The two part chassis is of the centre pivot articulating type and is of a design which enables both front and rear axles to be attached directly to the chassis members.

The front and rear frames are connected in the middle by a vertical pivot in spherical bearings and a horizontal link, which connects between the spherical bearing of the vertical pivot and an additional spherical bearing located in the rear frame.

This arrangement is illustrated in Figure 4.3 and shows the articulation and oscillation of the chassis

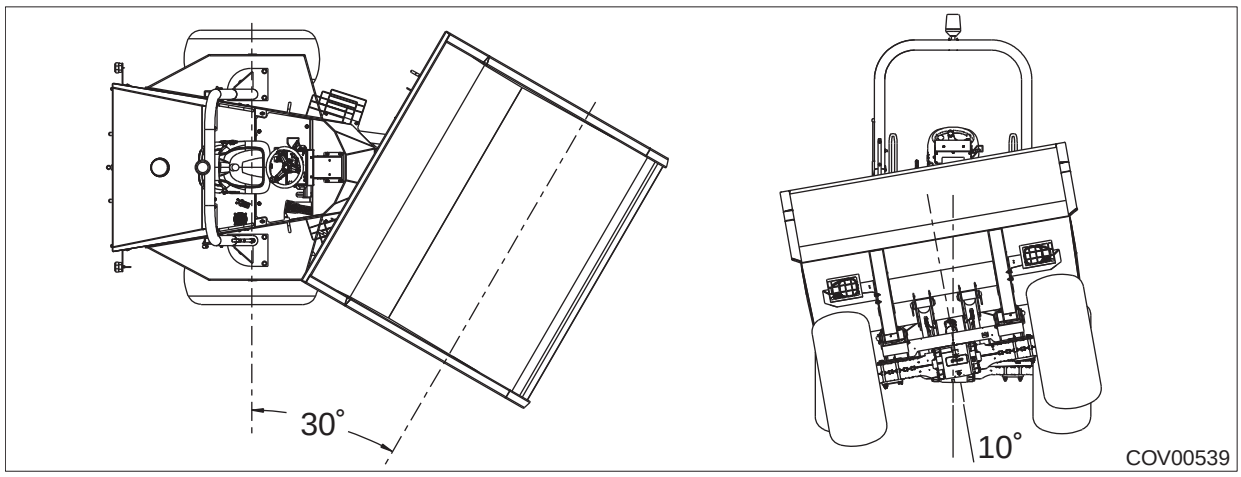


Figure 4.3. - Chassis Articulation Limits

4.6 Hydraulic System

The hydraulic system provides power to operate the vehicle steering and to power the skip elevation.

The system comprises an engine driven hydraulic pump drawing oil from a tank located inside the chassis. The tank is fitted with a suction strainer, an oil level gauge, and a filler/breather cap.

The pressure is set at 172 bar (2495 psi) on TA9 machines and 210 bar (3045 psi) on TA10 machines The system is protected by a relief valve in the control valve that is set at the same pressure.

A return line filter is fitted to the circuit and is of the replaceable cartridge type.

An oil cooler is fitted to reduce the temperature of the hydraulic oil.

Steering of the dumper is by means of a single hydraulic ram connecting the front and rear frames, the oil supply to the ram is controlled by an “Orbitrol” hydrostatic steering unit.

The unit receives oil via a carry over port in the control valve and constantly meters oil to the steering ram as the steering wheel is turned.

The control valve, operated by a lever next to the drivers seat, controls the tipping and lowering of the dumper skip.

The skip can be elevated at varying speeds dependent on engine speed, and it can be stopped at any intermediate point for discharging of partial loads.

4.7 Battery Isolator

The battery isolator, Figure 4.4. is both a maintenance aid and an anti-theft and vandalism device. It has a removable key. After stopping the engine allow 2 minutes to elapse before turning the isolator key to the OFF position.

Before any maintenance the isolator should be set to the OFF position and the key removed.

The key should also be removed when leaving or parking up the machine to prevent unauthorised use or theft.

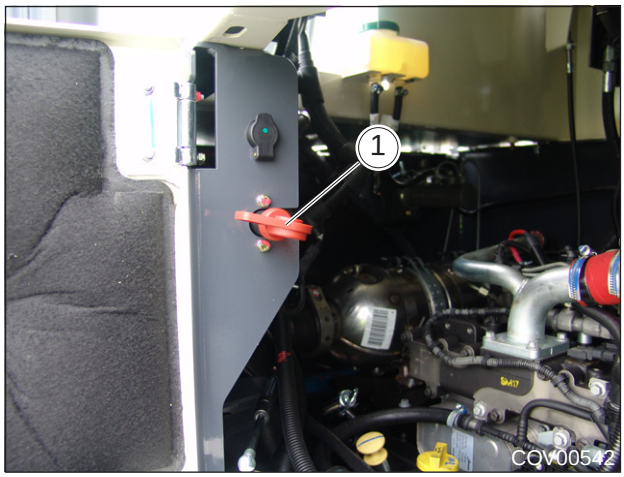


Figure 4.4. - Battery Isolator

1. Isolator Key (ON Position)

(1) Operation

When the key is in the horizontal position the battery is supplying power to the machine and the machine may be used normally.

Turning the key anti clockwise to the vertical (OFF) isolates the power supply to the machine and allows the key to be removed from the isolator switch.

NOTICE

After stopping the engine a period of 2 minutes must elapse before turning the key OFF position. Failure to follow this instruction will damage the ECU.

4.8 Circuit Breakers & Audible Warning

These components are fitted on the dash box; Figure 4.5 refers.

Figure 4.5. - Circuit Breakers and Audible Warning

1. Audible Warning
2. Circuit Breakers

(1) Circuit Breakers

The circuit breakers are located on the left hand side of the dash box. A 20 amp circuit breaker is fitted protecting the engine electrical system. On machines with highway lighting a second 30 amp circuit breaker is fitted.

In the event of a fault occurring the circuit breaker will trip out, this being indicated by the button of the circuit breaker protruding out beyond its normal position.

Should a breaker trip out the reason for the overload must be investigated and the components at fault replaced or repaired.

Once the repair has been completed the circuit breaker should be reset by pressing the button until it locks in position thus restoring the electrical supply.

(2) Audible Warning

The Audible Warning will sound if the parking brake is ON and the starter switch is turned on and in the RUN position and a gear is selected. As soon as the parking brake is released the warning will go off.

The warning will also sound when the engine is running and the following faults occur:

- Transmission oil temperature exceeds a predetermined level.
- Coolant temperature exceeds a predetermined level.
- Low coolant level.

If buzzer sounds when engine is running - STOP THE ENGINE IMMEDIATELY and investigate the fault.

4.9 Control Panel and Switch Functions

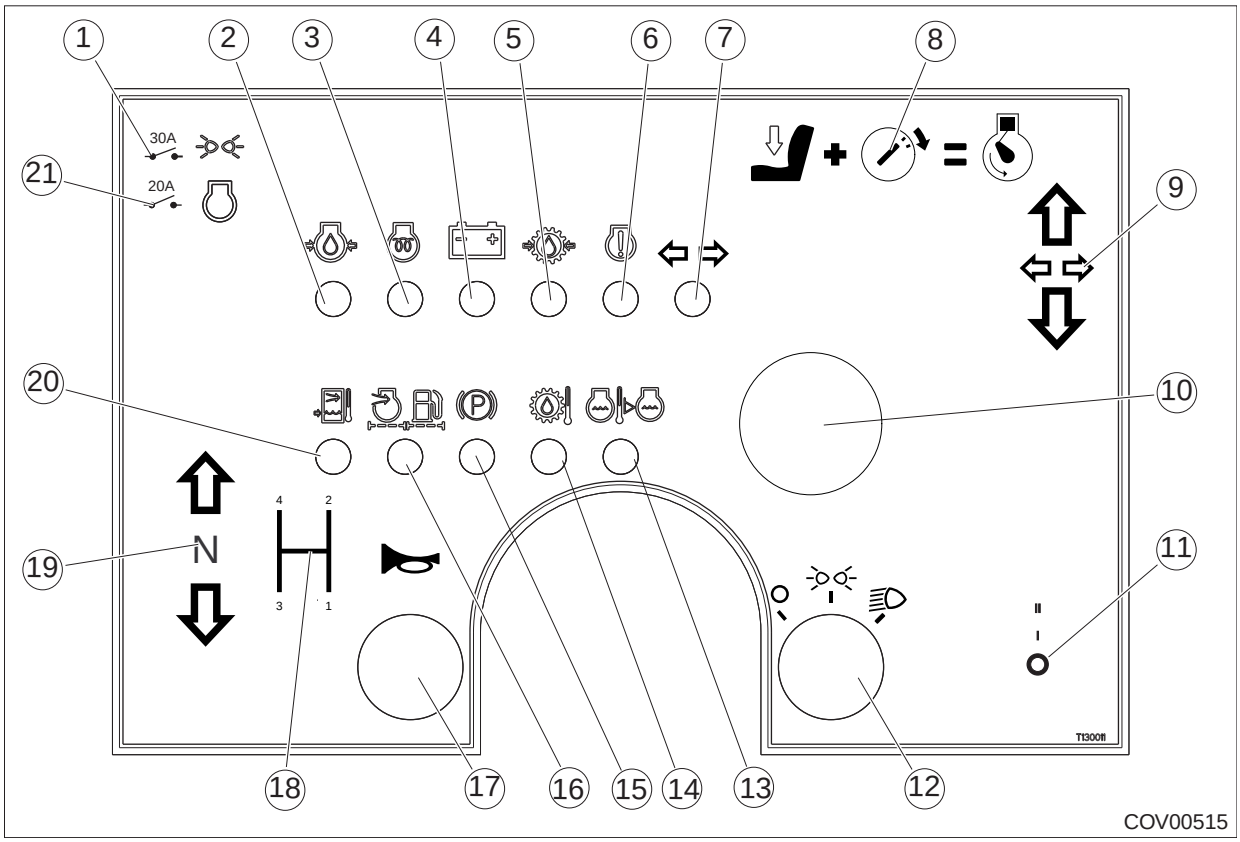


Figure 4.6 Control Panel

1. Circuit Breaker - Lighting
2. Warning Light - Engine Oil Pressure Low
3. Warning Light - Pre Heat
4. Warning Light - Battery Charge
5. Warning Light - Transmission Oil Pressure - Low
6. Warning Light - Engine Fault
7. Warning Light - Direction Indicators (When Fitted)
8. Instruction - Seat Interlock
9. Instruction - Indicator Switch (When Fitted)
10. Switch - Hazard Warning Lights (When fitted)
11. Instruction - Start Key Switch
12. Instruction - Highway Lighting (When Fitted)
13. Warning Light - Coolant Temperature/Low Coolant
14. Warning Light - Transmission Temperature - High
15. Warning Light - Parking Brake - On
16. Warning Light - Air Filter/Fuel Filter Blocked
17. Instruction - Horn
18. Instruction - Gear Change Lever
19. Instruction - Forward/Reverse Switch
20. Warning Light - Charge Air Temperature
21. Circuit Breaker - Engine Electrical System

Table 4.1 - Control Panel Symbol Description

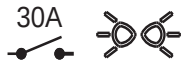
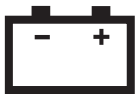
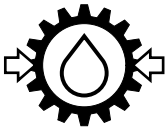
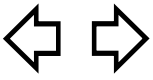
Symbol	Name	Description
	Circuit breaker - Lighting Circuit	30A Lights (if fitted) Circuit breakers protect the machines electrical system.
	Circuit breaker - Engine Electrical System	20A Engine Electrical System Circuit breakers protect the machines electrical system.
	Warning Light - Engine Oil Pressure	This warning light will come on when the start switch is turned to the RUN position. When the engine starts, the light should go off. If the light fails to go off or come on when the engine is running - STOP THE ENGINE IMMEDIATELY Do not use the machine until the fault has been rectified.
	Warning Light - Engine Pre Heat.	This warning light will come on when the start key is in the pre - heat position. When the light goes out the engine can be started.
	Warning Light - Battery Charge	The battery charge warning light should only come on when the start switch is ON and the engine is not running. When the engine starts and full RPM is selected the charge warning light goes off. The warning light should stay off while the engine is running. If the light fails to go off when the engine is running - STOP THE ENGINE IMMEDIATELY Do not use the machine until the fault has been rectified.
	Warning Light:- Transmission Oil Pressure	This light will come on when the transmission oil pressure falls below a predetermined level If the light comes on stop the machine immediately and investigate the fault.
	Warning Light - Engine Fault.	If this light should come on stop the engine immediately. Do not use the machine until the fault has been rectified.
	Warning Light - Direction Indicator	When fitted, this light will flash when the indicator switch is moved into the left or right turn position. If the light fails to perform this function, do not use the machine until the cause has been rectified.

Table 4.1 - Control Panel Symbol Description (continued)

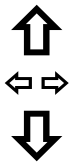
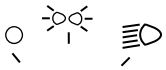
Symbol	Name	Description
	Instruction - Engine Starting	This symbol indicates that the operator must be seated before the engine will start.
	Instruction - Direction Indicator Switch	When fitted, this instruction informs the Operator in which direction to move the switch in order to operate the LEFT and RIGHT direction indicators
	Instruction - Engine Start Key Switch	This instruction shows the start key positions.
	Instruction - Lighting Switch - When fitted.	This switch will turn the headlights, front and rear side lights on and off.
	Warning Light - Coolant Level	This warning light will come on when the engine coolant level is low. If the light comes on stop the engine, allow the system too cool and top up the system with coolant/
	Warning Light - Coolant Temperature	The coolant temperature warning light should only come on when the start switch is in the RUN position and should go out when the engine is cranked. If the warning light comes on when the engine is running - STOP THE ENGINE IMMEDIATELY. Do not use the machine until the fault has been rectified.
	Warning Light - Transmission oil temperature high	This warning light will come on if the transmission oil temperature exceeds a predetermined level. An audible warning will also sound. If the light comes on when the engine is running:- STOP the engine immediately. Investigate the fault.
	Warning Light:- Parking Brake ON	This light will come on when the parking brake is ON and the ignition switch is set to the RUN position, an audible warning will also sound if forward or reverse is selected. The light should go out and the audible warning go off.when the parking brake is released.
	Warning Light - Fuel Filter Blocked	This light will come on if the fuel filter is blocked. Stop the engine immediately. Investigate the fault.

Table 4.1 - Dashboard Symbol Description (continued)

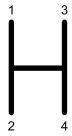
Symbol	Name	Description
	Warning Light - Air Blockage	This warning light indicates an air filter blockage. When the light comes on stop the engine immediately and clean/replace the filter
	Instruction - Horn Button	This symbol indicates that by pressing the button the horn will sound. The horn is used to warn others and must only be used for this purpose. Excessive use may cause others to ignore a genuine warning.
	Instruction - Gear Lever Positions	This symbol indicates to the operator the position the gear lever needs to be in to select a certain gear.
	Instruction - Forward / Reverse Switch	This symbol indicates the position that the forward/reverse switch should be set to enable the machine to move backwards or forwards.
	Warning Light - Charge Air Cooler Cooler Inlet Temp	This light will come on when the inlet temperature reaches 105° C. Should the warning be ignored and the cause not rectified when the temperature reaches 110° C the engine management system will de-rate the engine to 80% power.

Table 4.2 - Switch Operation

Switch	Name	Description
	Hazard Light Switch	Pressing the button will cause all four direction indicator lights to begin flashing and will continue to do so until the button is pressed again
	Horn Button	When pressed, this button will cause the horn to sound.
	Light Switch	Turning the switch clockwise from the OFF position (A) to position (B) will cause the front and rear side (marker) lights and the registration plate lights to come on. Turning the switch to the next position (C) will cause the main headlights to come on.

4.10 Hour Meter

The hour meter is fitted to the rear face of the dash box - Figure 4.7. refers.

Figure 4.7. - Hour Meter

1. Hour Meter

The hour meter records the total time the engine has been running and is useful for determining service times for the machine.

4.11 Engine Start/Stop Switch

This switch is located on the side of the dash box, Figure 4.8. refers permits the starting and stopping of the engine. It has a removable key for security. With the key removed a weatherproof cover protects the switch from damage.

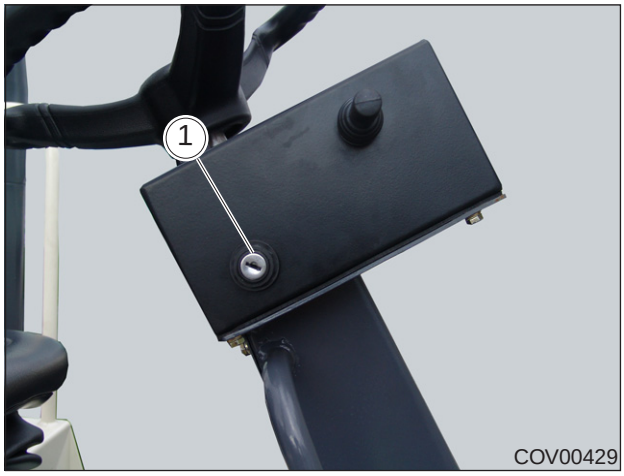


Figure 4.8. - Start/Stop Switch

4.12 Forward/Reverse Switch

This switch, Figure 4.9. refers, permits the machine to be driven in the forward or reverse direction. The switch has 3 positions:-

0 - Neutral

A - Forward

B - Reverse

Figure 4.9. - Forward/Reverse Switch

1. Forward/Reverse Switch

When the machine is not being used the switch must be returned to the Neutral position to prevent accidental Movement. If the parking brake is ON and forward or reverse is selected a buzzer will sound.

4.13 Highway Lighting (When Fitted)

The lighting is controlled by a 3 position switch, Figure 4.10. refers.

Figure 4.10. - Light Switch

1. Lighting Switch.

With the switch in position 0 all lights are OFF. In position 1 the side and tail lights are ON. In position 2 the head lights, side lights and tail lights are ON.

(1) Direction Indicators

The direction indicators are controlled by a 3 position switch, Figure 4.11. refers.

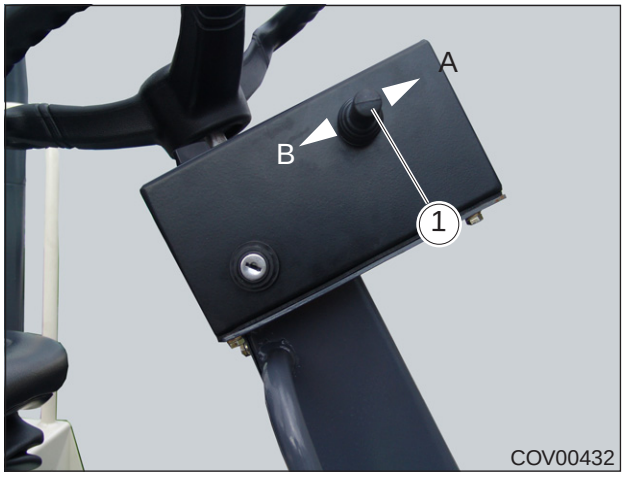


Figure 4.11. - Direction Indicator Switch

1. Direction Indicator switch

with the switch in the OFF position (0) the indicators do not operate. Move the switch forward (A) and the Left Hand indicators will operate. Move the switch backwards (B) and the Right Hand indicators will operate. Returning the switch to the off position will turn the indicators off.

(2) Brake Lights

The brake light switch is activated when the brake pedal is pressed and the lights will come on. The lights go out when the pedal is released.

(3) Front Light Unit

Each front light unit contains a head light, side light and indicator light. Figure 4.12. refers.

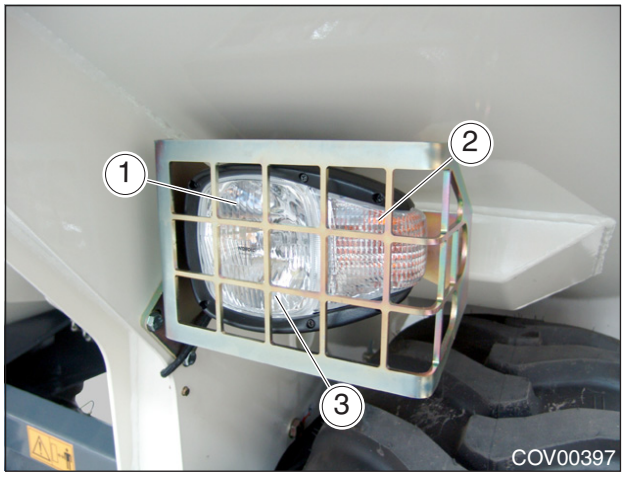


Figure 4.12. - Front Light Unit

1. Headlight

2. Indicator
3. Side Light

(4) Rear Light Unit

Each rear light unit contains a rear light, brake light, indicator and reflector. Figure 4.13. refers.

Figure 4.13. - Rear Light Unit

1. Indicator
2. Reflector
3. Tail Light
4. Brake Light

(5) Registration Plate Lights

Separate light units that operate in conjunction with the side an tail lights illuminate the rear registration plate.

4.14 Obstruction Beacon

The beacon is provided to warn people of the machines presence, Figure 4.14. refers. A mounting for the beacon is located on the ROPS. The beacon is controlled by a switch.

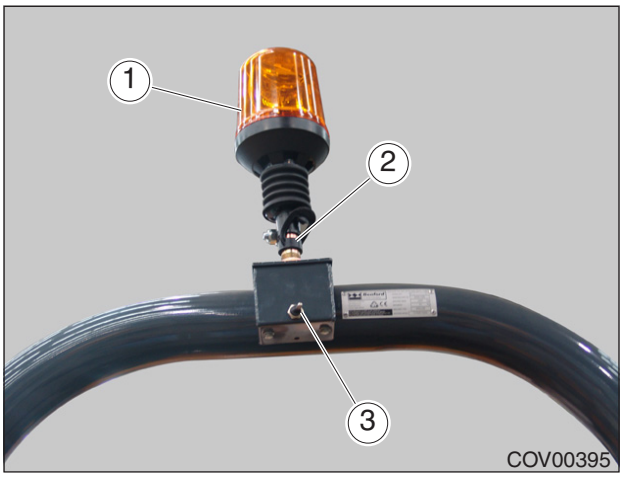


Figure 4.14. - Obstruction Beacon

1. Beacon
2. Mounting Stem
3. Switch

When the beacon is not required it can be removed and placed in its storage position within the engine compartment to prevent theft or vandalism. When the beacon is removed from the ROPS a rubber cover is fitted over the mounting stem to prevent the ingress of water.

Figure 4.15. - Mounting Stem

1. Mounting Stem
2. Rubber Cover

4.15 Foot Brake and Throttle Pedals

Refer to figure 4.16. The pedals are positioned in standard automotive format. The throttle pedal controls the speed of the machine; the further the pedal is pressed down the faster the machine will travel. To slow the machine and apply the brakes press the brake pedal.

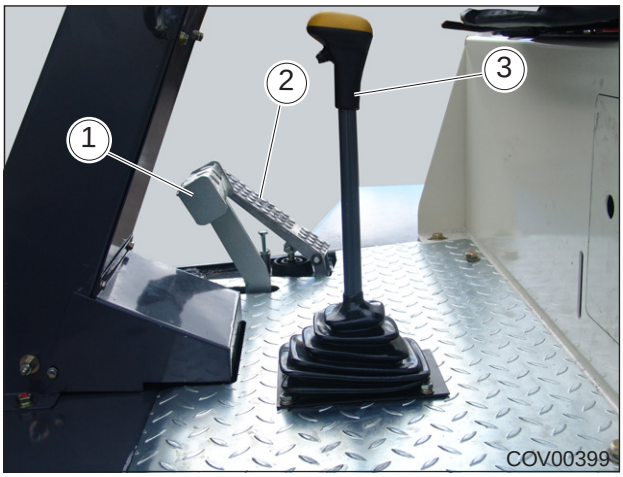


Figure 4.16. - Driving Controls

1. Brake Pedal
2. Throttle Pedal
3. Gear Selector Lever

4.16 Gear Selector Lever

The lever, Figure 4.17. allows any of the gearbox's 4 speed ratios to be selected. The lever moves in a conventional H pattern.

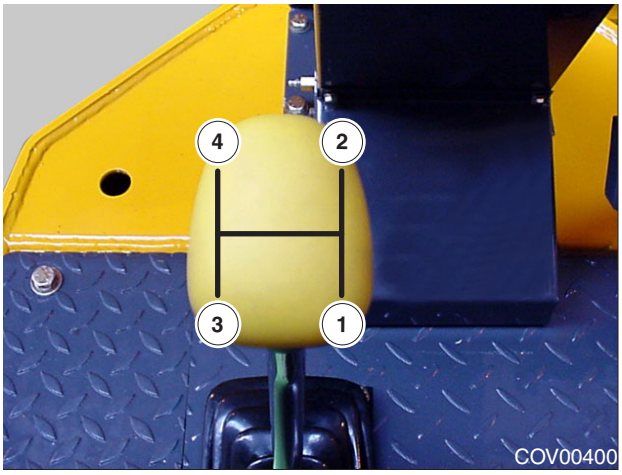


Figure 4.17. Gear Change Pattern

An interrupt button on the knob, Figure 4.18. refers is depressed and held while changing from one gear to another. Once the gear is selected the button is released. This button is the equivalent to a clutch pedal on a conventional vehicle.

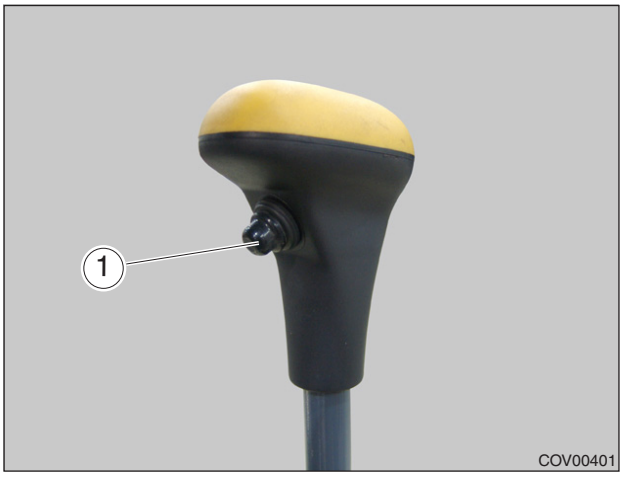


Figure 4.18. - Gear Selector Lever

1. Interrupt Button

4.17 Parking Brake

A lever to the side of the drivers seat; Figure 4.19. refers activates a calliper operating on a disc on the output shaft of the gearbox to provide braking.

Figure 4.19. - Parking Brake Lever.

1. Parking Brake Lever
2. Release Catch

With the lever vertical the brake is applied. A light will come on indicating the brake is applied. To release the brake it is necessary to press the release catch before pushing the lever to the horizontal position.

⚠ WARNING

The parking brake may not hold the machine on gradients exceeding 8.5° (15%) do not park on slopes exceeding this figure. Whenever possible park the machine across the slope and chock the wheels.

4.18 Tow Hitch

The tow hitch; Figure 4.20. has been fitted for recovery purposes. The dumper's primary purpose is not that of a towing vehicle, but if it is used as one, always make sure the weight of any trailer and its load does not exceed half the rated payload of the dumper.

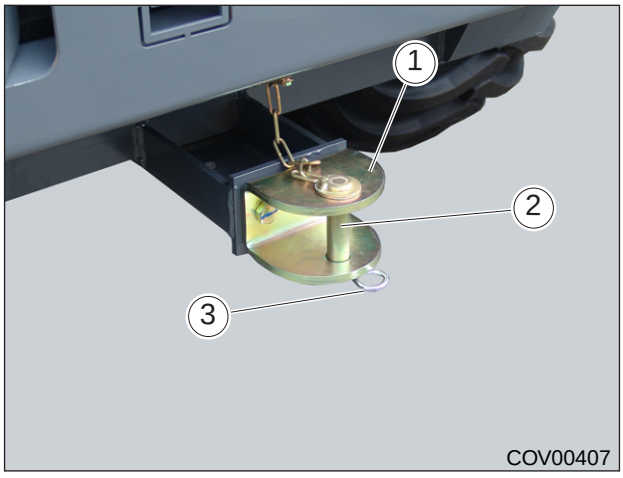


Figure 4.20. - Tow Hitch

1. Tow Hitch
2. Pin
3. Grip Clip

If towing with the dumper:-

- Make sure the skip is loaded with half the rated payload to provide adhesion when braking.
- Never drive down gradients to avoid “jack knifing”.
- Only use first gear.
- Never drive across inclines.
- Always secure the towing pin with the grip clip once the trailer is attached.

WARNING

The dumper must not be used as a towing vehicle on the public highway.

5 Transportation

Before transporting the machine on a railway wagon or on the public highway on a lorry or trailer where speeds will exceed 50 m.p.h. (80 kph) the beacon must be removed from the ROP's. It may be necessary to lower the ROP's when transporting the machine by rail or on a lorry or trailer.

⚠ DANGER

Never drive or use the machine with the ROP's lowered.

5.1 Transporting by Rail

Since railway transport is subject to special regulations that differ in each country you are advised to contact the appropriate authority in your area for information.

5.2 Loading on to a Trailer or Lorry Using Ramps

⚠ DANGER

Keep all bystanders well clear when loading or unloading a dumper.

When loading dumper onto a trailer or lorry, strong loading ramps must be used. Ramps must be strong enough to take the weight of the machine.

The angle of the loading ramps must not exceed the grade ability (1 in 5 - 20%) of the dumper. In wet, muddy or icy conditions this angle will be reduced considerably.

Make sure the trailer or lorry will not move during loading by applying its brakes and also chocking its wheels if necessary.

The skip must be empty when transporting the machine.

When the machine has been loaded and is positioned correctly fit the articulation lock.

Secure the machine to the Trailer or Lorry - *see Securing the Machine for Transport.*

Release the articulation lock before unloading.

NOTICE

If loading onto a trailer or lorry using a winch and not the dumpers own engine power the drive shaft between the gearbox and transfer must be disconnected; See Chapter 11. Failure to disconnect the drive shaft before towing will result in oil starvation and possible seizure of the transmission resulting in extensive damage. The parking brake will be inoperative when the drive shaft is disconnected.

5.3 Articulation Lock

The articulation lock, Figure 5.1 prevents chassis movement during transport or maintenance.

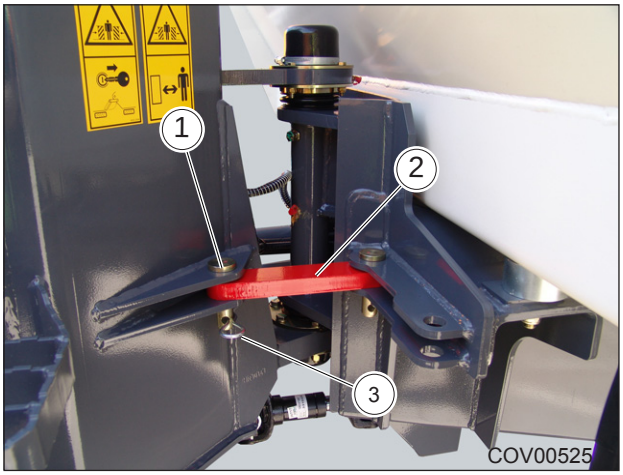


Figure 5.1 - Articulation Lock

1. Pin
2. Lock Bar
3. Grip Clip

PROCEDURE

1 To fit the lock bar remove the grip clip and pin from the lock bar in its storage position.

2 Pivot the locking bar around until the holes in the bar are in line with the holes in rear chassis bracket.

3 It may be necessary to move the steering wheel slightly to align the holes

4 Re fit the pin through the holes and secure with the grip clip.

5.5 Tie Down Points

Tie down points are provided at the front and rear of the machine. The chains, straps, ropes etc. must be attached to the machine's front tie down points, Figure 5.2, and rear tie down points, Figure 5.3 (each side of machine).

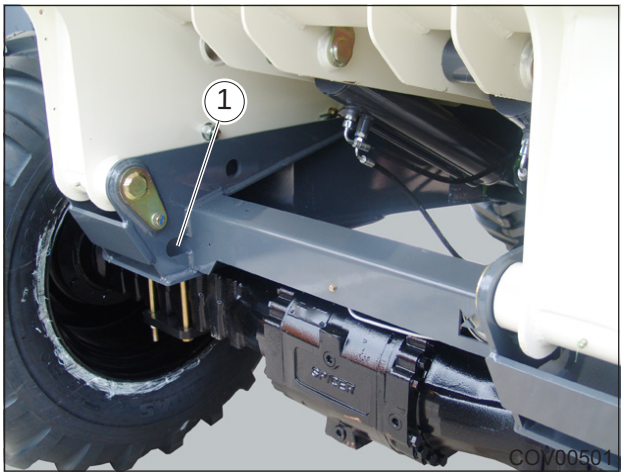


Figure 5.2 - Front Tie Down Point

1. Tie Down Point

The rear towing eye is utilized as the rear tie down point.

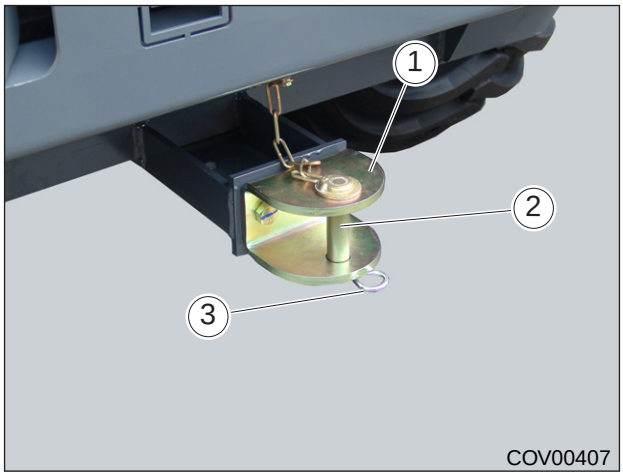


Figure 5.3 - Rear Tie Down Point

1. Towing Eye
2. Pin
3. R Clip

5.6 Tie Down

When the machine has been put in an acceptable position on the lorry or trailer it must be secured in place.

PROCEDURE

1 Place the machine in a suitable position.

2 Apply the parking brake.

3 Fit the articulation lock.

4 Remove battery isolator key.

5 Lower ROPS to transport position.

6 Nail blocks/chocks at the front, rear and outside of each wheel.

7 Tie down using tie down points provided with suitable chains straps or ropes.

8 Loose ends of chains, straps or ropes must be secured to the lorry/trailer bed.

An alternative method of tie down using ropes or straps over the wheels is shown in Figure 5.6. When using this method nail blocks/chocks at the front, rear and outside of each wheel to prevent movement.

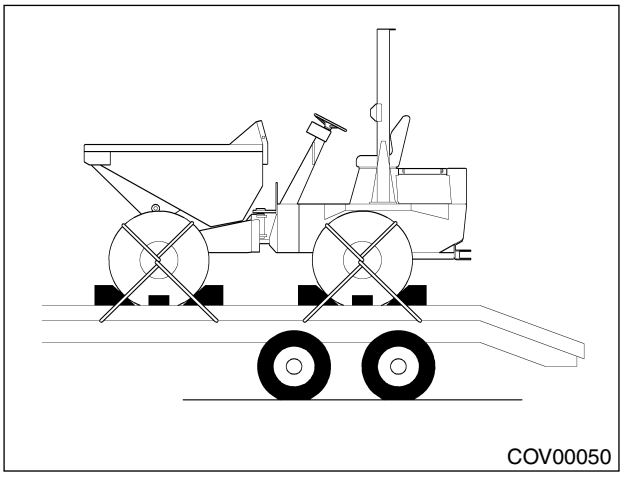


Figure 5.6 - Alternative Tie Down Method

6 Initial Setup and Adjustments

6.1 Delivery Checks

On delivery of the machine:-

- Remove any packaging and shipping supports.
- Release any transport locks.
- Clean any protective coating from bright metal parts.
- Check for damage and missing parts.
- Install battery isolator key.
- Check all fluid levels.
- Check tyres are inflated to correct pressures.
- Check that all manuals/handbooks are present and available to users.

6.2 Setup

Place the ROPS in the work position, Figure 6.1. refers.

DANGER

The machine must not be used until the ROPS has been raised and secured in the work position. It is prohibited to use a machine without the ROPS installed in the work position.

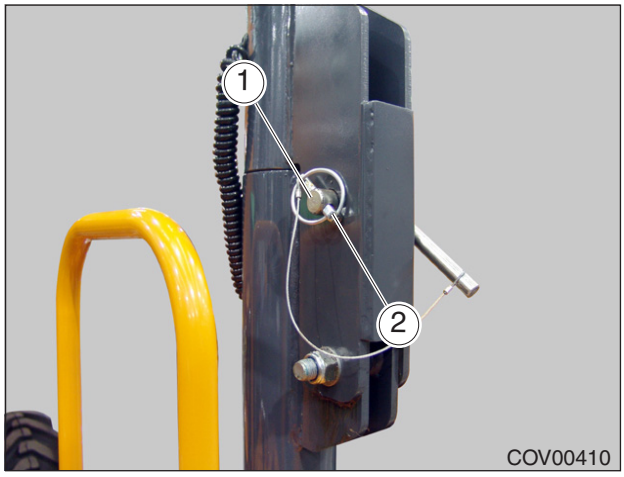


Figure 6.1 - ROPS Set Up

1 Linch Pin

2 Locking Pin

PROCEDURE

1. Remove the linch pins from the locking pins either side of the ROPS.
2. Remove the locking pins.
3. Push the top half of the ROPS upwards to the working position.
4. Refit the locking pins.
5. Secure the locking pins in position with the linch pins.
6. Remove the rubber cover and fit the beacon to the stem on top of the ROPS.
7. Switch on the beacon and check it is working correctly.

6.3 Start Up

When all delivery checks have been made and the ROPS has been placed and secured in the work position:-

- Start the engine and allow to run for a few minutes to warm up.
- Check all instruments and warning lights are functioning correctly.
- Check lighting and indicators operate (if fitted).
- Stop the engine and check for any fluid leaks or signs of overheating.
- Re start the engine, drive the machine a short distance to check operation of transmission, brakes and steering.
- Check if the skip tips and lowers.
- Park up the machine and stop the engine.
- Report and have rectified any faults before placing machine into service.

7 Standard Operating Procedures

Before using this equipment the operator must read and fully understand this Instruction Manual and pay particular attention to Section 2 - Safety and Section 4 - Description which describes the major components of the machine and the layout and function of all the controls.

ALL Operators of this machine must be authorised, mentally and physically capable of operating this machine and fully trained in its operation.

7.1 Pre Start Checks

Make sure the machine has been cleaned to enable leaks etc. to be noticed easily during the pre-start checks and during normal operation.

.

PROCEDURE

1. Check general condition of machine - missing parts, loose fasteners, fuel lines for damage, hydraulic hose end fittings for leakage, hose outer covers for ballooning, etc.
2. Check engine and hydraulic oil levels - make sure the engine and hydraulic tank are filled using clean oil and a clean container.
3. Check fuel tank is full - make sure the tank is filled when the engine is cold and the machine is in a well ventilated area, with the engine stopped using clean fuel and container. It is advisable to fill the tank at the end of a working session to prevent condensation forming in the tank during long periods of inactivity, e.g. overnight.
4. Check battery is fully charged and the cables are in good condition.
5. Check for adequate ventilation if the machine is to be started or run in a building etc.
6. Make sure the ROPS is in the “work” position.

7.2 To Set the ROPS in the Work Position.

It is prohibited to use this machine without the ROP’s locked in the work position. Refer to figure 7.1

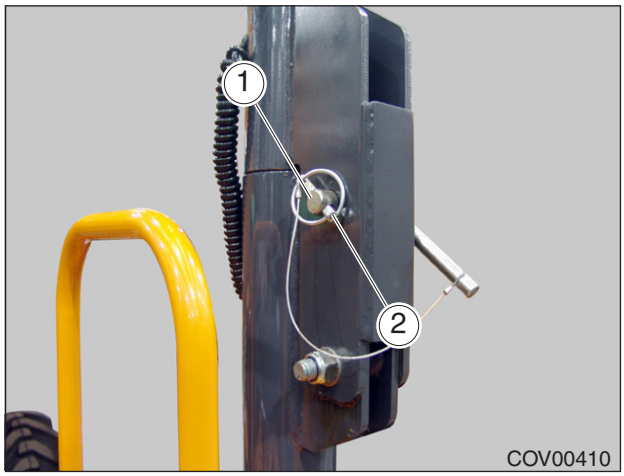


Figure 7.1. - ROPS pins

1 Locking Pin

2 Linch Pin

PROCEDURE

1. Remove the linch pins from the locking pins.
2. Remove the locking pins.
3. Push the top section of the ROP's upwards to its working position.
4. Refit the locking pins and secure with the linch pins.
5. Fit the beacon.

7.3 To Lower the ROP's for Transport

PROCEDURE

1. Remove the beacon.
2. Remove the linch pins from the locking pins.
3. Remove the locking pins.
4. Lower the top section of the ROP's downwards.
5. Refit the locking pins and secure with the linch pins.

7.4 Machine Access

Steps and grab handles are provided each side of the machine, refer to Figure 7.2. These must be used when mounting or dismounting to avoid personal injury. Always face the machine and maintain 3 points of contact at all times; either 2 hands and 1 foot or 2 feet and 1 hand. Never jump from the machine.

Figure 7.2 - Machine Access Points

1. Grab Handles
2. Access Steps

7.5 Seat

The seat is adjustable for operator comfort. The adjustments allow the seat to be moved forwards and backwards, the back of the seat may be tipped forwards and backwards and the seat suspension may be adjusted to the weight of the operator - Figure 3 Refers.

Figure 7.3. - Operators Seat

1. Fore and aft movement
2. Back Rest Angle Adjustment
3. Weight Adjustment

(1) Seat Adjustment

Refer to Figure 7.4. Lifting the lever (1) allows the seat to move forwards or backwards to suit the leg length of the operator. When the lever is released the seat is locked in position.

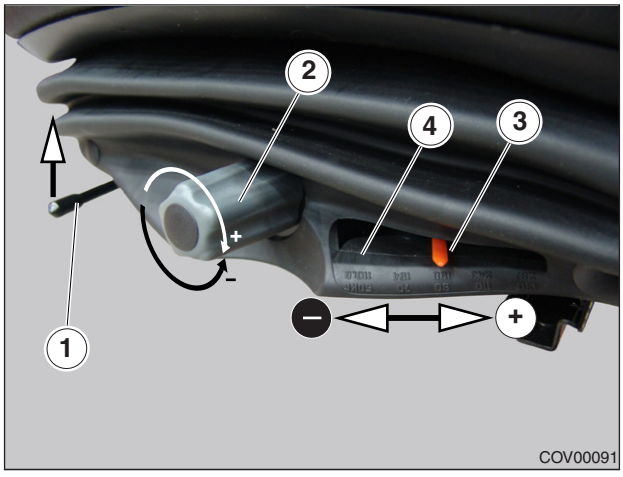


Figure 7.4. - Seat Adjustment

1. Fore and aft adjustment
2. Weight adjustment knob
3. Scale
4. Pointer

(2) Weight Adjustment

The weight adjustment knob (2) is used to adjust the seat characteristics to suit the weight of the operator.

Turning knob clockwise adjusts the seat for the larger person and anticlockwise for the smaller person.

When the knob is turned, the pointer (4) moves to allow the operator to select the correct weight from the scale (3).

If the seat weight adjustment is not set, the Operator may experience discomfort or personal injury.

(3) Back Rest Angle Adjustment

Refer to Figure 7.5. Lifting the lever (1) allows the back of the seat to be pushed forwards or backwards to suit the preference of the operator. When the lever is released the seat is locked in the selected position.

Figure 7.5. - Back Rest Angle

1. Adjustment Lever

(4) Seat belt

Refer to Figure 7.6. Sit on the seat, place the seat belt across the hips and insert the latch (3) into the buckle (1) until it locks into position.

Adjust by pulling the belt through buckle (B) until it is a firm, comfortable fit across the hips.

To remove the seat belt, press the button (2) and lift the latch (3) out of the buckle (1).

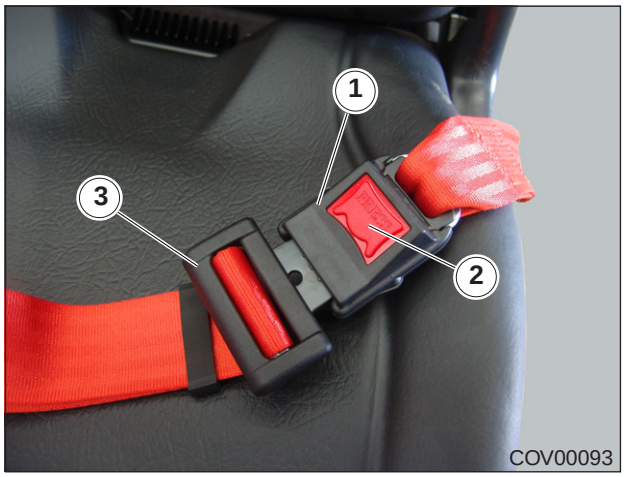


Figure 7.6. - Seat Belt

1.Buckle

2.Button

3.Latch

⚠ WARNING

You must wear the seat belt at all times when operating this machine. Examine the belt for damage and correct operation each time you use the machine. Failure to wear a seat belt or keep the belt in good working order may result in death or serious injury.

7.6 To Start the Engine

Before starting the engine check to see that there are no obvious faults with the machine. Refer to Figure 7.7 for start key positions.

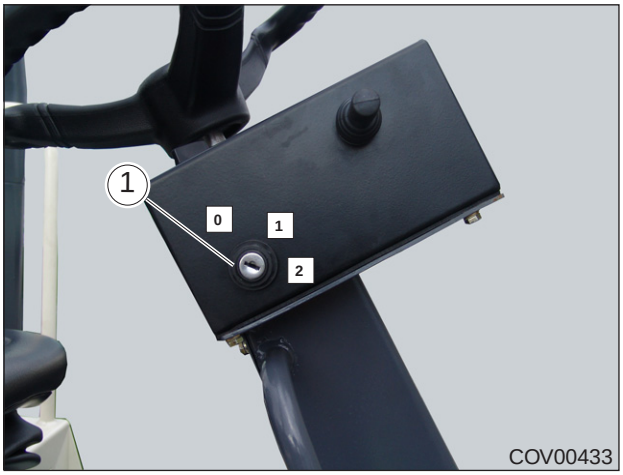


Figure 7.7. - Start Key Positions

1. Start Key Switch

PROCEDURE

1. Sit on the seat.
2. Check that the parking brake is applied and the forward/reverse switch is in Neutral.
3. Check that the gear selector lever is in Neutral
4. Turn the switch to position 1, Operating voltage. Engine ready for operation If the ambient temperature is below that predetermined in the engine control system, the preheating phase begins. The electronic engine control controls and activates the current feed to the glow plugs.
5. Turn further clockwise against spring pressure to position 2, The engine will start.
6. Release the key immediately the engine starts; the pilot lamps will go out.
7. If the engine fails to start and the error lamp comes on, the electronic engine control has activated the start lock to protect the engine. The start lock is released by switching off the system for 30 seconds.
8. Should the engine fail to start after 2 attempts investigate the cause by referring to the fault table - Section 10 (Troubleshooting).

NOTICE

To start engine after fuel filter replacement refer to Troubleshooting Section - 10 - 4.

Do Not use starting sprays to assist engine starting.

Do Not crank engines for more than 20 seconds - allow 1 minute between starting attempts.

Never engage the starter motor when the engine is running.

7.7 To Stop the Engine

PROCEDURE

1. Stop the machine in a safe position on firm level ground.
2. Apply parking brake and place the forward/reverse switch in Neutral.
3. Place the gear selector lever in Neutral
3. Turn start key anticlockwise to OFF; position.
4. Remove battery isolator key if leaving machine over night.

7.8 To Move the Machine

(1) Moving Off

PROCEDURE

1. Select forward or reverse on the forward/reverse switch.
2. Press and hold the interrupt button on the gear selector lever
3. Select the gear required.
4. Release the interrupt button
5. Release the parking brake
6. Gently press the accelerator pedal until the machine begins to move.

(2) To Change Gear

(a) Changing Up or Down a Gear

PROCEDURE

1. Reduce engine speed by easing off the accelerator pedal.
2. Press and hold the interrupt button on the gear selector lever.
3. Move the gear selector to the gear required.
4. Release the interrupt button.
5. Gently press the accelerator pedal to increase speed if necessary.

(b) To Select Reverse Gear

PROCEDURE

1. Reduce engine speed by easing off the accelerator pedal.
2. Bring the machine to a halt with the brakes.
3. Move the forward/reverse switch to Reverse.
4. If necessary select another gear.
5. Gently press the accelerator pedal to increase speed

⚠ DANGER

Only reverse at slow speeds. Look behind while reversing and be aware of bystanders in the vicinity of the machine.

NOTICE

Do not move from forward to reverse with the machine moving. The machine must be brought to a halt otherwise there will be damage to the transmission components.

(3) To Stop the Machine

PROCEDURE

1. Reduce engine speed by easing off the accelerator pedal.
2. Bring the machine to a halt with the brakes.
3. Apply the parking brake
4. Move the forward/reverse switch to Neutral.
5. Move the gear selector to Neutral.
6. Stop the engine.

7.9 Gradients

Ascending, descending or crossing gradients should be done with extreme care. Refer to *Gradients* in the *Safety Section* of this manual.

⚠ CAUTION

A suitable low gear must be selected prior to descending a gradient. If in doubt select first gear.

7.10 Loading the Skip

Before the skip is loaded the operator should:-

- Park the machine safely.
- Apply parking brake and stop engine.
- Get off the machine and stand clear.

⚠ WARNING

It is important to get off the machine and stand clear when loading the skip using a backhoe loader, digger, loader shovel or similar equipment to prevent injury from falling objects.

7.11 Skip Operation

(1) To Tip the Load

Refer to Figure 7.8

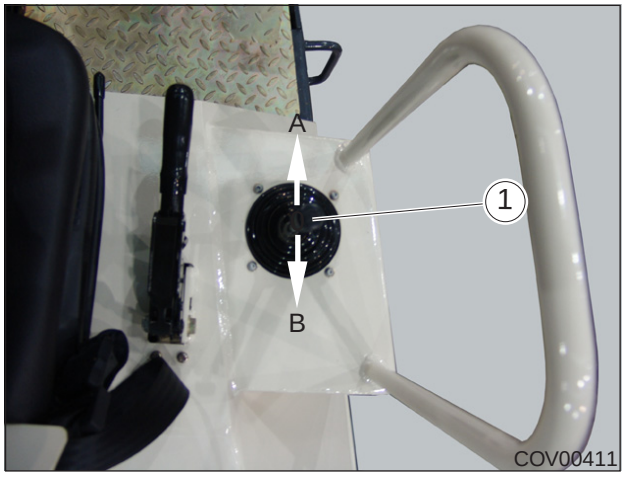


Figure 7.8. - Control Lever - Forward Tip

1. Control Lever

PROCEDURE

1. Position the machine where the load is to be discharged.
2. Make sure the area is clear of bystanders.
3. Push the control lever forwards (A) towards the front of the machine; the skip will tip and the load will be discharged.

(2) To Lower the Skip

PROCEDURE

1. When the load has been discharged.
2. Move the control lever towards the back of the machine (B).
3. The skip will lower.

7.12 Parking the Machine After Use

At the end of the working day make sure the machine is parked safely and securely.

PROCEDURE

1. Find a safe flat well lit area to park the machine where it will not cause an obstruction or danger to others.
2. Stop the machine and apply the parking brake.
3. Set the Forward/Reverse switch to Neutral
4. Set the gear selector lever to neutral.
5. Stop the engine and remove the start key.
6. Access the engine bay, turn the battery isolator to OFF and remove the isolator key.
7. Close the engine bay door, lock and remove the key.

8 Emergency Operating Procedures

In the event of an emergency or system failure try and place the machine in a position of safety or in a safe condition.

Once the machine has been rendered safe the start key and battery isolator key must be removed to prevent start up and a warning tag placed in a prominent position warning others not to use the machine.

The fault or failure must be rectified before the machine is put back into use.

8.1 Running Out of Fuel on a Slope

PROCEDURE

1. If Possible place the machine across the slope in a safe position.
2. Apply parking brake.
3. Chock or block the wheels.
4. Re-fuel the machine.

8.2 “Jump Starting” a Machine

⚠ DANGER

It is essential to avoid sparks when connecting cables to a discharged battery because the battery generates inflammable gases and may pose a fire risk.
If the battery is frozen it may explode if the machine is “jump started” and the engine run. NEVER jump start a frozen battery.

It is possible to connect a slave battery to boost a discharged battery on the machine - Refer to figure 8.1. When doing so you must wear the correct protective clothing, gloves and a face shield - *see Safety Section* in this manual.

Observe the following points:-

- The discharged battery must not be frozen.
- The slave battery must be of the same nominal voltage as the discharged battery.
- The “jumper” cables are of sufficient capacity to carry the starting current.

It is necessary to remove the floor plate to gain access to the battery - see *Battery Access* in *Maintenance* section.

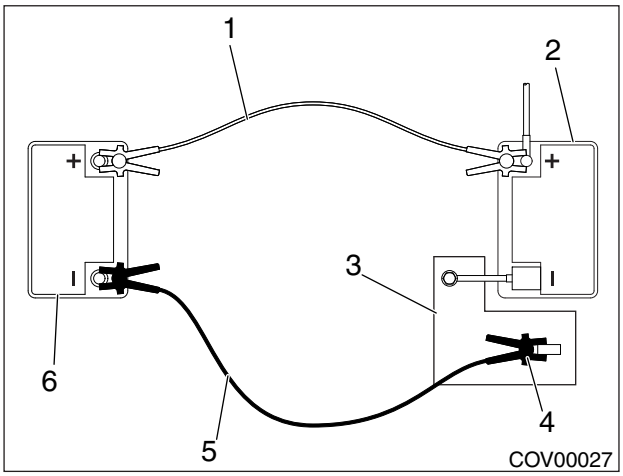


Figure 8.1. - Battery “Jump” Starting

1. Positive (+) Jump Lead
2 Discharged Battery on Machine
3 Machine Chassis
4 Jump Lead Connection on Chassis
5 Negative (-) Jump Lead
6 Slave Battery

PROCEDURE	
1	Connect the positive jump lead from the positive terminal on the slave battery to the positive terminal on the machine battery.
2	Connect the negative cable to the negative terminal on the slave battery.
3	Connect the end of the negative cable to a suitable point on the machine chassis.
4	Start the engine using the machines start key.
5	Allow engine speed to fall to idle.
6	Carefully remove the negative jump lead from the machine chassis. Do not let the cable touch any part of the machine.
7	Remove the negative jump lead from the slave battery.
8	Carefully remove the positive jump lead from the machines battery.
9	Remove the positive jump lead from the slave battery.

9 Maintenance and Lubrication

9.1 General Information

This section lists the daily checks and tasks that are within the scope of the operator and are needed to keep the machine in optimum condition. A service schedule is included at the back of this chapter to enable owners/operators to organise regular maintenance. For detailed servicing or maintenance procedures refer to the maintenance manual for this machine available from Terex or consult your dealer.

Regular maintenance and lubrication will prolong the life of the machine and keep it in a safe working condition.

Refer to the Safety section of this manual and understand its contents before performing any maintenance tasks on this machine.

Contaminated water, fluids and oils removed from the machine must be disposed of legally.

9.2 Maintenance Notes

Before carrying out any service or maintenance work make sure that the following precautions have been taken.

- Park the machine on firm level ground.
- Stop engine and chock the wheels.
- Remove Start key to prevent accidental start up.
- Place a warning tag on the machine informing others not to use the machine.
- Only jack or raise the dumper using the correct equipment.
- Make sure jacks, axle stands etc. are capable of supporting the weight of the machine.
- Always fit and lock in position a skip support before working under a raised skip.
- Always fit the articulation lock when working in the area of the centre pivot.
- Refer to and adhere to the Lubricating and Service Schedules detailed in this manual.
- When checking fluid levels the machine must be on a firm, level surface, in a well ventilated position away from naked flames, grinding sparks etc.
- Make sure the work area is clean and tidy before starting and on completion of any maintenance.
- Make sure strict cleanliness is observed especially when dealing with hydraulic systems.
- Isolate electrical system by using the isolator switch or by disconnecting the battery.
- Make sure all guards and covers removed during maintenance are replaced before the machine is put back into work.
- OIL - Refer to Safety Section BEFORE handling oil and other lubricants and observe and adhere to all the warnings and precautions listed. Avoid skin contact with used oils and lubricants.

9.3 Cleaning The Machine

Clean the dumper thoroughly, this will make it easier to find oil leaks and loose fittings etc.

- Take care to clean the oil and fuel tank filler necks.
- Drain plugs must also be cleaned.
- Remove debris from the radiator vents and blow out the radiator matrix with compressed air occasionally.
- Using water or a pressure washer to wash down the exterior of the dumper with or without detergent is generally all that is required.
- Avoid spraying electrical equipment with pressure washers.
- When cleaning the dumper it is preferable to use a biodegradable cleaner. Do not use solvents or like products which can damage rubber and plastics.

(1) Safety Signs

All safety signs fitted to the machine must be legible, when cleaning only use mild soap and water to clean the signs - DO NOT use solvent based cleaners because they may damage the safety sign material. All safety signs MUST be replaced immediately they become damaged or unreadable.

9.4 Battery Disposal

Refer to Section 12 - Storage, Decomissioning and Disposal.

9.5 Hydraulic Oil Under Pressure

Release any pressure in the hydraulic circuit before carrying out repairs to the hydraulic system or components.

⚠ WARNING

Fine jets of hydraulic fluid under pressure can penetrate the skin. Do not use your fingers to check for small leaks or expose uncovered areas of your body to leaks. Check for leaks using a piece of cardboard. If skin is penetrated with Hydraulic Fluid, Get Immediate Medical Help. Fluid injected into the skin must be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene will result.

9.6 Skip Support

A skip support or other method of supporting the skip in the raised position MUST be fitted and locked in position before working under a raised skip.

⚠ DANGER

NEVER reach or work under a raised skip unless a prop or similar method of supporting the skip safely is fitted.

Refer to Figure 9.1.

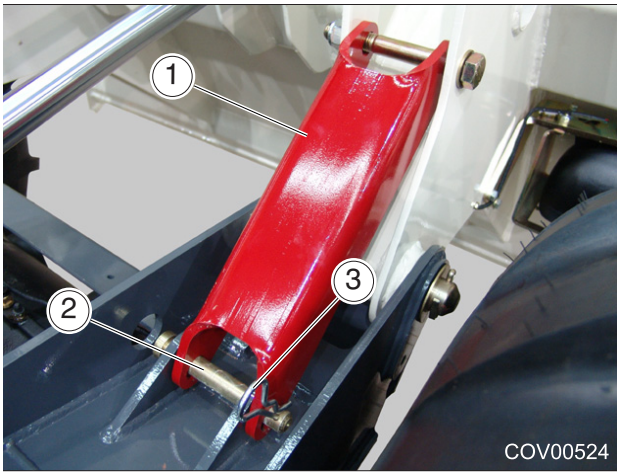


Figure 9.1 - Skip Support

1. Skip Support
2. Pin
3. Grip Clip

(a) To fit the Skip Support

PROCEDURE

1. Fully raise the skip.
2. Remove the grip clip and pin and lower the skip support from its storage position.
3. Align the hole in the support with the holes in the chassis
4. Refit the pin and secure with the grip clip.
5. Repeat the procedure for the prop on the other chassis rail.

9.7 Articulation Lock

The articulation lock must be fitted before working in the area of the centre pivot.

⚠ DANGER

Failure to fit the articulation lock could cause a pinch point or trap that will result in death or serious injury.

(1) To Fit the Articulation Lock

Refer to Figure 9.2.

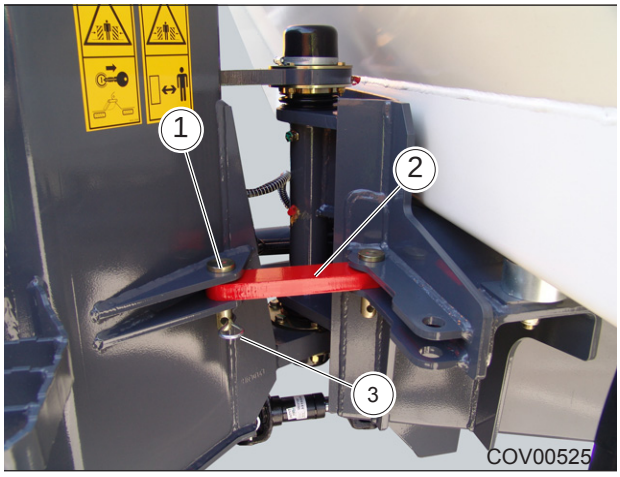


Figure 9.2. - Articulation Lock

1. Pin
2. Lock Bar
3. Grip Clip

PROCEDURE

1. Remove the grip clip and pin securing the bar in its storage position.
2. Pivot the lock bar round until it lines up with the holes in the chassis.
3. Refit the pin and secure with the grip clip.

9.8 Floor Plate Removal

To gain access to the battery and other components it may be necessary to remove the floor plate and steering hose cover - Figure 9.3 refers.

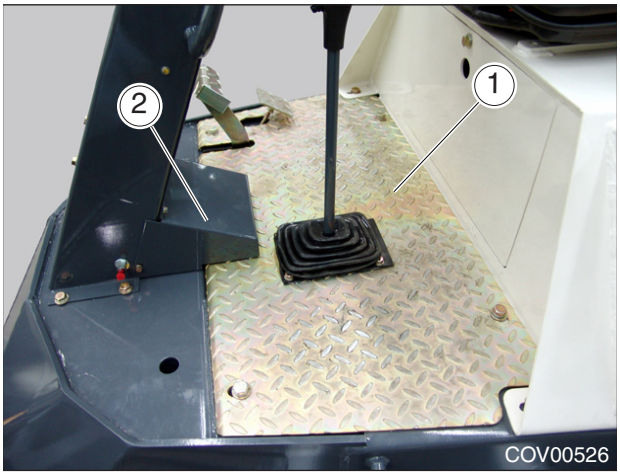


Figure 9.3. - Floor Plate Removal

1. Floor Plate
2. Steering Hose Cover

9.9 Engine Coolant

The cooling system is pressurised to increase boiling point of the coolant and therefore extreme caution must be taken when the cooling system is hot to prevent scalding.

⚠ WARNING

NEVER perform checks or maintenance on the cooling system when it is hot. NEVER remove radiator rap when engine is hot - severe risk of scalding. NEVER remove radiator cap when the engine is running. Antifreeze is TOXIC. If accidentally swallowed, medical advice must be sought Immediately. Antifreeze is corrosive to the skin. If accidentally spilled on to skin, it must be washed off immediately. Protective clothing and eye protection must be worn when handling antifreeze.

(1) To Check the Coolant Level

Refer to Figure 9.5

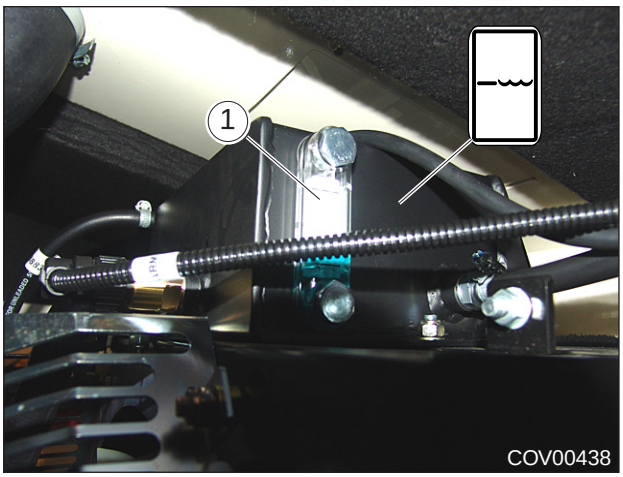


Figure 9.5 - Coolant Level

1. Level Gauge

Allow the engine to cool before checking the level. With the engine cold the correct coolant level should be level with the mark on the decal positioned next to the expansion tank level gauge. Should the level be below this mark coolant of the correct specification must be added.

(2) To Add Coolant

PROCEDURE

1. Remove the filler cap on the expansion tank.
3. Add the correct grade of coolant until it is level with the mark on the decal.
4. Refit the filler cap and run the engine and check for leaks.

9.10 Engine Oil

The oil level is checked using the dip stick - Figure 9.? refers. The engine oil level must always be between the MIN and MAX on the dip stick. If the engine is warm switch OFF and leave for 5 Minutes before checking levels.

⚠ WARNING

NEVER check the oil level or add oil with the engine running. Be careful of hot lubricating oil. Danger of scalding.

NOTICE

Low lubricating oil level can damage the engine. Over filling with oil can damage the engine.

(1) To Check the Engine Oil Level

Refer to Figure 9.6 The machine must be on firm, level ground when checking levels.

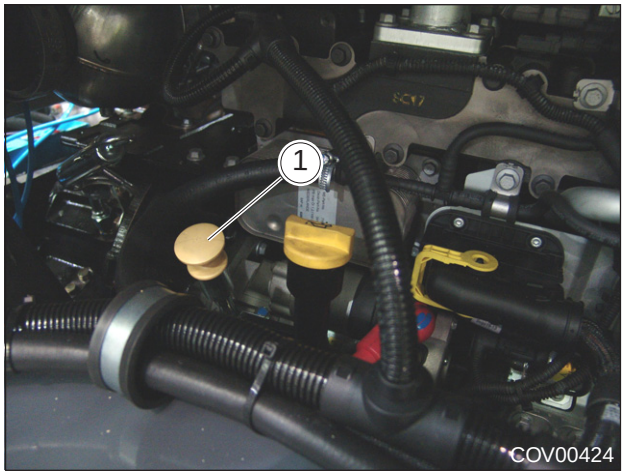


Figure 9.6 - Engine Oil Dipstick

1. Engine Dip Stick

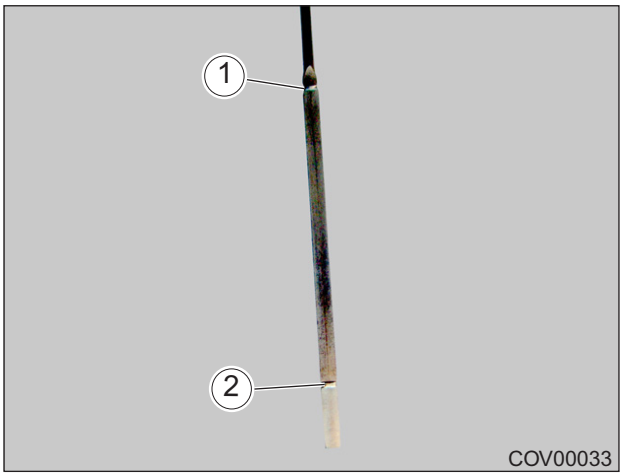


Figure 9.7. - Dipstick MAX and MIN marks

1. Maximum (MAX) Oil Level
2. Minimum (MIN) Oil Level

PROCEDURE

1. Pull out the dipstick and wipe off with a lint free cloth or paper.
2. Re-insert the dipstick as far as it will go.
3. Extract the dipstick and read off the level
4. Add oil of the correct specification if necessary.

(2) To Add Oil

Oil is added through the filler cap - Figure 9.8 refers. Refer to the lubrication for the recommended grade of oil.

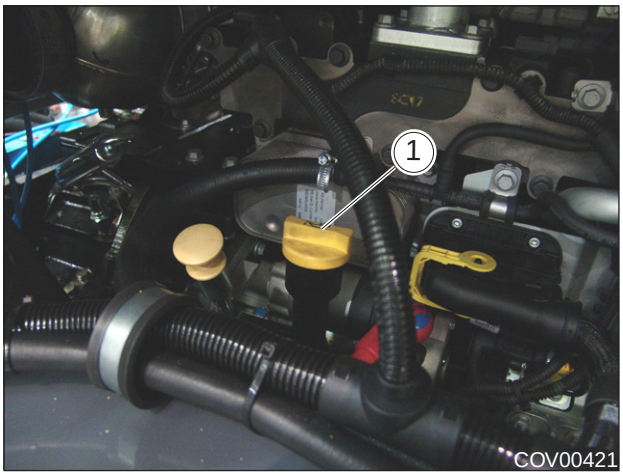


Figure 9.8 - Engine Oil Filler

1. Filler Cap

PROCEDURE

1. Remove the filler cap.
2. Add oil of the recommended grade.
3. Check the dipstick at regular intervals and make sure the level does not exceed the MAX mark.
4. When the oil reaches the required level replace the filler cap.
5. Wipe up any spilt oil.

9.11 Synchro Shuttle Gearbox

The level is checked using the dipstick/filler - figure 9.9. Refers.

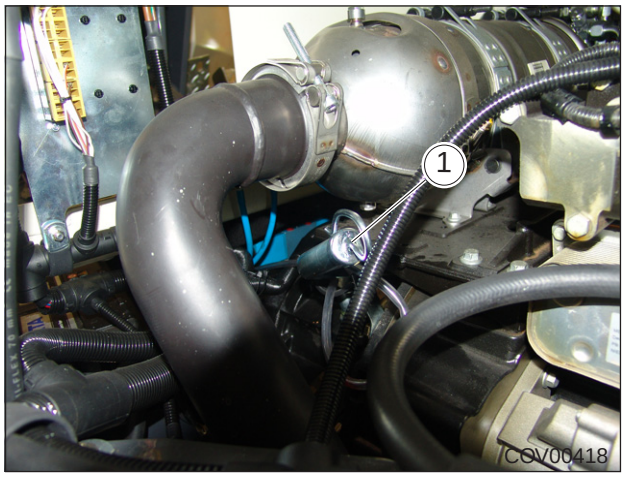


Figure 9.9. - Gearbox Dipstick/Filler

1. Dipstick Filler

With the oil warm the level should be between MIN and MAX on the dipstick Figure 9.10. refers.

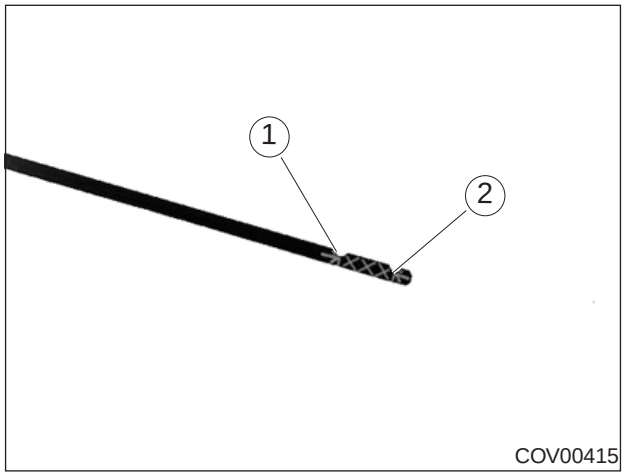


Figure 9.10. - Dipstick MIN and MAX Marks.

1. MAX Mark
2, MIN Mark

NOTICE

Never overfill the transmission as this will result in oil breakdown due to excessive heat and aeration of the oil caused by the churning action of the oil. Breakdown of the oil will cause heavy sludge deposits that will block oil ports and build up on splines and bearings.

(1) To Check the Level

PROCEDURE

1. Drive the machine for about 1 minute and then stop and park up on flat level ground.
2. Pull out the dipstick and wipe off with a lint free cloth or paper.
3. Replace the dipstick and then remove again.
4. The level should be between the MIN and MAX marks on the dipstick.
5. If the oil is below the MIN mark top up with the correct grade of oil.

(2) To Add Oil

PROCEDURE

1. Remove the dipstick/filler
2. Add the correct grade of oil until it reaches the MAX mark on the dipstick.
3. Replace the dipstick.
4. Drive the machine for a few minutes then re check the level.

9.12 Hydraulic System

During ANY maintenance extreme care must be taken to make sure the cleanliness of the hydraulic circuit is maintained. By observing strict hydraulic cleanliness the machine will benefit from fewer hydraulic failures through contamination.

- Always thoroughly clean machine before any hydraulic maintenance. Use paper roll, not rag, to wipe parts.
- Always use fresh, clean hydraulic oil from a sealed container.
- Always make sure old gasket particles and excess sealing compound etc. do not enter the system. If they do clean them out.
- Never use dirty containers for oil storage.
- Never use dirty containers or funnels for filling hydraulic system.

A description of the hydraulics is contained in section 4 of this manual. Hydraulic diagrams will be found in Appendix 2.

A filler/dipstick is provided on top of the tank - Refer to Figure 9.11.

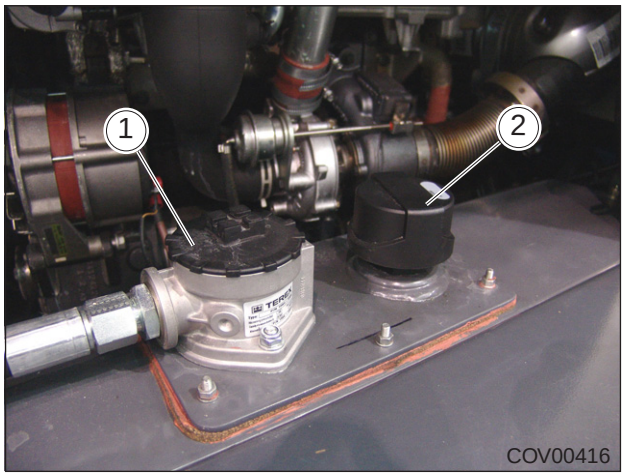


Figure 9.11. - Hydraulic Tank

1. Return Line Filter
2. Filler Dip Stick

(1) To Check the Hydraulic Oil Level

Refer to Figure 9.12.

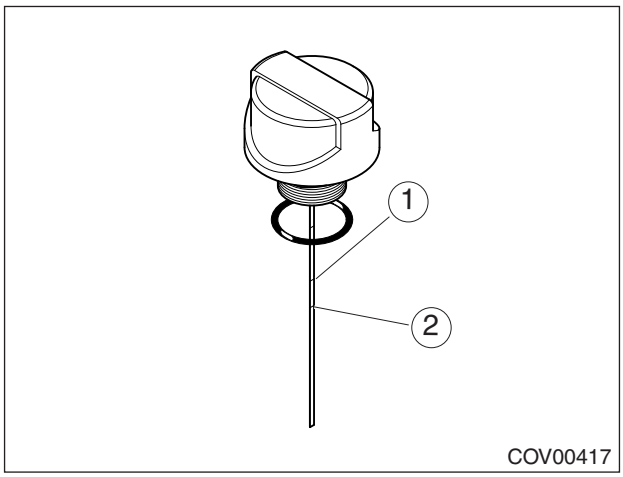


Figure 9.12. - Hydraulic Tank Dipstick

1. MAX Mark
2. MIN Mark

PROCEDURE

1. Remove the dipstick/filler cap, take care not to loose the O ring.
2. Wipe all traces of oil from the dipstick with lint free cloth or paper.
3. Replace the dipstick.
4. Remove the dipstick again and check the oil level, it should be between MIN and MAX
5. If the oil is below the MIN mark add oil of the correct grade.

(2) To Add Hydraulic Oil

PROCEDURE

1. Remove the dipstick/filler
2. Add the correct grade of oil until it reaches the MAX mark on the dipstick.
3. Replace the dipstick/filler.

9.13 Fuel System

Refer to Figure 9.13.

⚠ DANGER

Avoid sparks, naked flames etc. when filling or maintaining the fuel system. Do not smoke when filling the fuel tank or maintaining the fuel system. Do not leave the engine running when filling/ working on the fuel system.

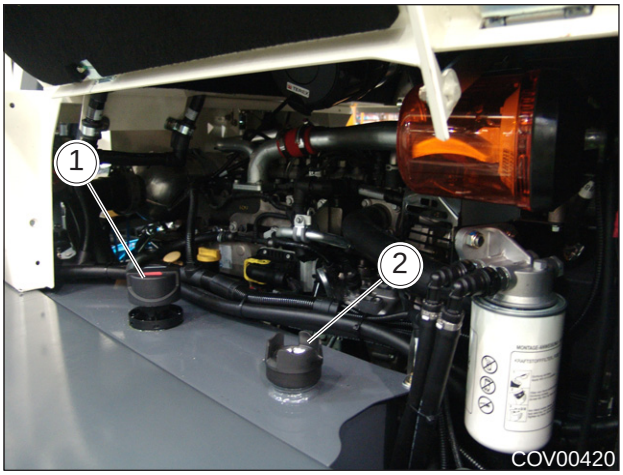


Figure 9.13. - Fuel Filler and Level Gauge

1. Fuel Filler
2. Level Gauge

(1) To Add Fuel

PROCEDURE

1. Clean the area around the fuel filler cap.
2. Remove the filler cap and add the correct grade of fuel until it reaches the FULL mark on the level gauge.
3. Replace the filler cap.
4. Clean up any spilt fuel.

9.14 Braking System

(1) Brake Arrangement

Oil immersed multi-plate brakes are fitted and are operated hydraulically. The brake system is charged with mineral oil not conventional brake fluid. A mechanically applied parking brake is incorporated.

NOTICE

The braking system uses mineral oil not conventional brake fluid. Only use mineral oil to top up the brake reservoir. Never use conventional brake fluid. Never purge the brake system and refill with brake fluid as this will damage rubber components in the brake system and may cause brake failure.

The reservoir is visible through a slot in the front panel to enable the level to be checked. Figure 9.14. refers. To add fluid the brake reservoir is accessible by removing a cover on the seat support.

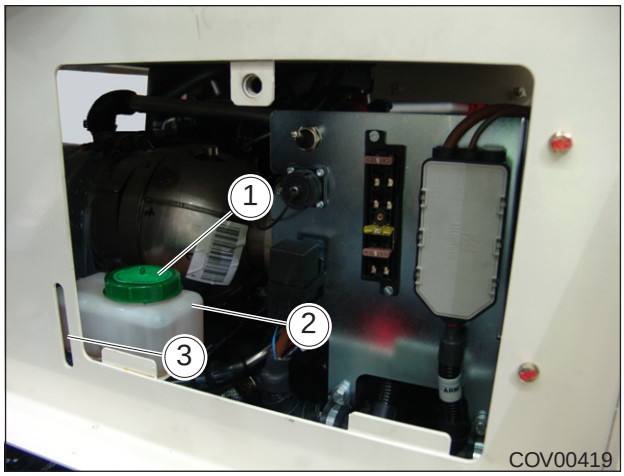


Figure 9.14. - Brake Reservoir

1. Filler Cap
2. Level Mark
3. Viewing Slot

(2) To Add Fluid

PROCEDURE

1. Remove the access cover
2. Clean the area around the filler cap.
3. Remove filler cap and add fluid up to the level mark at the base of the filler neck.
4. Replace access cover.

(3) Parking Brake Test

When adjusted correctly the parking brake should hold the machine without movement at full engine revs in 4th gear. Test as follows:-

PROCEDURE

1. Apply the parking brake.
2. Select forward and 4th gear
3. Increase engine speed gradually up to maximum RPM.
4. If the machine moves abort the test immediately and have the adjustment rechecked.

⚠ WARNING

Make sure all personnel are clear of the area before performing the parking brake test. Danger of the machine moving unexpectedly.

9.15 Maintenance Schedule

Service engineers should, if necessary, refer to the Maintenance Manual for the machine which is available from Terex or your local dealer.

Service Schedule		
Period	**Operation**	**Responsibility**
10 Hours	Engine Oil - Check Level	Operator
	Coolant - Check Level	"
	Brake Reservoir - Check Level	"
	Hydraulic Oil - Check Level	"
	Fuel Tank - Check Level	"
	Cyclone Air Cleaner - Check Cleaner and Squeeze Dust Ejector	"
	Tyres - Check Pressures	"
	Cooling System/Oil Cooler - Check for Leaks	"
	Start Inhibitor - Check Function	"
	Radiator - Remove Debris, Clean Matrix with Compressed Air	
	Lights/Instruments - Check Function	"
	Seat Belt - Operation/Damage	"
	Articulation Lock - Serviceable	"
	Skip Prop - Serviceable	"
	ROP's/FOP's - Inspect, Check for Damage, Loose Bolts etc.	"
	Operators Platform & Steps - Clean and No Damage	"
	Visually Check for Fluid Leaks, Damage, Missing Safety Signs	"
50 Hours	Perform 10 Hour Checks	Service Engineer
	Gearbox Oil - Check Level	"
	Drive Shafts - Grease	"
	Centre Pivot - Grease	"
	All Pivots & Linkages - Grease	
	Parking Brake - Check	"
	Engine Hoses and Clamps - Inspect/Replace	"
	Wheel Nut Torque - Check	"
	Cyclone Air Cleaner - Remove End Cap Inspect Element	"
	Fuel System Water/Sediment - Drain	"
	Alternator Belt Tension - Check	"
250 Hours	Perform 10 & 50 Hour Checks	Service Engineer
	Front Axle, Hubs - Check Level	"
	Rear Axle, Hubs - Check Level	"
	Breathers, Front & Rear Axles - Clean	"
	Transfer Box - Check Level	"
	Hydraulic Hoses - Check	"
	Centre Pivot Lock Screws - Check Tightness	"

Table 9.1 - Service Schedules

Service Schedule		
Period	**Operation**	**Responsibility**
500 Hours	Perform 10, 50 & 250 Hour Checks	Service Engineer
	Cooling System Supplemental Coolant Additive - Test/Add	“
	Radiator - Clean	“
	Cyclone Air Cleaner Elements - Clean/Replace	“
	Engine Oil - Change (every 250 if sulphur content exceeds 15ppm)	“
	Engine Oil Filter - Change (every 250 if sulphur content exceeds 15ppm)	“
	Gearbox Filter - Change	“
	Brake System - Change Fluid	“
	Fuel System Primary Filter - Replace	“
	Fuel System Secondary Filter - Replace	“
	Front and Rear Axles - Change Oil	“
1000 Hours	Perform 10, 50, 250 & 500 Hour Checks	Service Engineer
	Gearbox Oil - Change	“
	Gearbox Strainer - Clean	“
	Hydraulic System Fluid - Change	“
	Hydraulic System Return Filter - Change Element	“
	Hydraulic System Strainer - Clean	“
	Hydraulic Tank Filler Cap - Replace	“
	Water Pump - Inspect	“
	Centre Pivot - Re-torque Bolt	“
	Axle Bolts - Check Tightness	“
1500 Hours	As 500 Hours Plus:-	Service Engineer
	Engine Crank Case Breather Element - Replace	“
2000 Hours	Perform 10, 50,250, 500 & 1000 Hour Checks	Service Engineer
	Aftercooler Core - Inspect	“
	Alternator - Inspect	“
	Engine Mountings - Inspect	“
	Starter Motor - Inspect	“
	Turbocharger - Inspect	“
3000 Hours	As 1500 Hours Plus:-	Service Engineer
	Cooling System - Drain and Replace Coolant	“
4000 Hours	As 2000 Hours Plus:-	Service Engineer
	Aftercooler Core - Clean/Test	“

Table 9.1. - Service Schedules (Continued)

9.16 Fluids and Lubricants

(1) Engine Oil

Recommended Lubricant:-

Shell Rimula RT4 Low Ash Oil

Recommended Viscosity Grades

Temperature Range	Oil Viscosity
-5° to +40° C	20W-50
-15° to +40° C	15W-40
-20° to +40° C	10W-40
-20° to +30° C	10W-30
-30° to +40° C	5W-40
-30° to +30° C	5W-30
-35° to +40° C	0W-40
-35° to +30° C	0W-30

Table 9.2. - Engine Oil Viscosity

(2) Gearbox

Recommended Lubricant:-

Shell Spirax S4 CX 10W

(3) Transfer Box

Recommended Lubricant:-

Shell Spirax A 80W/90

(4) Axles

Recommended Lubricant:-

Shell Donax TD

(5) Brake Reservoir

Recommended Fluid:-

Shell Tellus T46

(6) Hydraulic System

Recommended Fluid:-

Shell Tellus T46

(7) Engine Coolant

Shell Glycoshell Antifreeze/Water Mixture

Concentration	Ratio	Protection ºC	Protection ºF
20%	1:5	- 9	15.8
25%	1:4	- 12	10.4
33.3%	1:3	- 19	- 2.2
50%	11:1	- 37	- 34.6

Table 9.3. - Antifreeze Concentrations

(8) Fuel System

Diesel to Specification:-

DIN 51628

EN 590

ASTM D 975 Grade 1-D S15

ASTM D 975 Grade 2-D S15

(9) Grease

Centre Pivot:-

Starplex All Purpose Grease EP2 - Lithium Complex Grease - Gr Lic, NLGI 2

Other Grease Points:-

Multi Purpose Grease EP2 - Lithium Grease Gr Li, NLGI 2

9.17 Fluid Capacities

Capacities - Litres								
Engine Sump	Gearbox	Transfer Box	Front Axle inc hubs	Rear Axle inc hubs	Fuel Tank	Hydraulic Tank	Brake System	Cooling System
9.0	13.0	0.9	9.7	9.7	67.0	50.0	0.2	14.4

Table 9.4. - Fluid Capacities

10. Troubleshooting

10.1 General Troubleshooting

(1) Engine will not start

Check fuel level.

Incorrect type or grade of fuel.

Fuel supply pipe blocked.

Below starting limit temperature for machine

Check electrical supply (see Electrical Troubleshooting).

Air filter blocked.

Leak in fuel injection line.

Engine electronics prevent starting.

(2) “Low” engine oil pressure light comes on

Low engine oil level.

Consult dealer before using the machine.

(3) “High” coolant temperature light comes on

Check if fan belt is loose or missing.

Check coolant level on header tank (Do NOT add coolant until system is cold).

(4) Loss of coolant

Loose hose clips

Split coolant hose.

Radiator leaking.

10.2 Electrical Troubleshooting

(1) Circuit breaker keeps “tripping out”.

Check wiring for damage and short circuits.

Check beacon socket (if the rubber cover is split or fitted incorrectly water can enter).

(2) System Dead

Check battery isolator is set to “ON”.

Check battery connections.

Battery defective or discharged (flat).

Check circuit breaker has not “tripped”.

(3) Charge warning light remains On with engine running

Check if fan belt is loose or missing.

(4) Lights and direction indicators do not work

Check circuit breaker has not “tripped”.

Check if bulb has blown.

10.3 Hydraulic Troubleshooting

(1) No Pressure

Check if sufficient oil in tank.

(2) Machine will not steer

Check steering lock is NOT fitted.

Check steering cylinder hoses for leaks.

(3) Skip will not tip

Check hoses for leaks.

10.4 Starting the Engine After Fuel Filter Replacement

Make sure the fuel system has been bled as follows:-

PROCEDURE

1. Make sure the replacement filter HAS NOT been pre-filled with fuel.
2. Make sure all pipework, filters etc. are sealed to prevent air entering the system.
3. Turn the key to position II without cranking the engine and switch off after 30 seconds or when the fuel pump stops.
4. Turn the key to position II without cranking the engine and switch off after 30 seconds or when the fuel pump stops.
5. Turn the key to position II without cranking the engine and switch off after 30 seconds or when the fuel pump stops.
6. Attempt to start the engine; if it fails to start after 15 seconds check for leaks and repeat from step 3.
7. If the engine still fails to start check the ECU for fault codes/call Deutz for assistance.

NOTE:- If the engine is cranked or started with excessive air in the HP system or pump serious damage can occur. In this case Deutz warranty liability is invalid.

11. Recovery

11.1 In the Event of a Breakdown

In the event of engine failure or other breakdown it is possible to tow the machine for a maximum distance of 1 mile (1.6 km) at speeds not exceeding 15 m.p.h. (25 kph). For distances exceeding this the machine must be transported on a lorry or trailer.

Before towing it is essential that the drive shaft between the gearbox and transfer box is disconnected to prevent damage to the gearbox. Failure to do this may cause oil starvation in the gearbox and possible seizure.

It is also necessary to disconnect the drive shaft if winching the machine onto a lorry or trailer.

Make sure the wheels are chocked before removing the drive shaft as once removed the parking brake is inoperative.

⚠ CAUTION

With the engine dead the hydraulic system will not function, the steering will still operate but under these circumstances steering wheel loads are high and the dumper must only be towed at very slow speeds. The parking brake will not work once the drive shaft is connected make sure that the wheels are chocked to prevent movement.

NOTICE

Failure to disconnect the top drive shaft before towing will result in oil starvation and possible seizure of the transmission resulting in extensive damage.

Only use the rear towing eye to tow the machine. DO NOT use the front tie down points..

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12 Storage, Decomissioning and Disposal

12.1 Long Term Storage

The machine must be stored in a dry environment protected from the elements and on a hard standing. Any contaminated Water / Fluids / Oils removed from the machine must be disposed of legally. Reference must be made to the engine manufacturers manual for specific instructions.

12.2 Decomissioning

Before placing the machine into storage:-

- Thoroughly wash down the exterior of the machine and remove any build up of dirt etc.
- Repair all damaged paint work o prevent further corrosion.
- Grease all greasing points.
- Start and warm up the engine. Drain the engine oil and refill with clean fresh oil. Refer to the engine manufacturers handbook for further information on prolonged engine storage with regards to anti corrosion oils and fluids.
- Check hydraulic oil level and top up as required.
- Drain and refill cooling system with water/antifreeze mixture of the correct ratio.
- Fill the diesel tank to prevent corrosion of the tank walls.
- Store the machine on solid level ground which is not liable to flooding, standing water or airborne contamination.
- Chock the wheels securely to prevent the dumper moving.
- Smear exposed metal parts with grease.
- Remove the battery, store in a safe place and keep fully charged.
- Seal off the air intake opening on the air cleaner and the exhaust opening.
- Leave the parking brake in the OFF position.

12.3 Recomissioning

Before putting the machine back into use the following operations must be carried out:-

- Clean grease or other protective film from piston rods and other exposed metal parts.
- Remove seals or covers from the air cleaner inlet and exhaust pipe.
- Check the condition of the air filter elements and replace if necessary.
- Thoroughly clean the machine.
- Make sure the battery has remained fully charged and re-connect to the machine.
- Carry out all measures for putting the engine back into use described in the engine manufacturers manual.
- Check all other fluid levels.

- Lubricate machine in accordance with lubrication diagram
- Examine tyres and inflate to correct pressure.

(1) If stored for more than a period of 6 months:-

- Replace hydraulic filters.
- Examine hydraulic oil for degradation and replace if necessary.
- Drain and replace oils in transmission, transfer box and axles.

12.4 Disposal

At the end of its life the machine must be disassembled by a competent person using safe working practices, wearing the appropriate Personal Protective Equipment and working in accordance with local regulations.

The appropriate lifting equipment, chocks and stands must be used to maintain a stable machine as components are removed and the machines centre of mass changes.

Care must be taken when dealing with flammable liquids and the machine parts that contained those liquids. Any process that could ignite flammable materials must not be used on components that have contained flammable liquids in them or have residual flammable liquids on them.

Fire extinguishers must be readily available if cutting/welding equipment is so used.

Fluids must be drained off into suitable containers and if possible recycled or otherwise disposed of in an environmentally friendly way in accordance with local regulations.

Where possible recyclable materials must be separated out and processed in accordance with local regulations using an authorised agent.

12.5 Disposal of Used Batteries

When the battery reaches the end of its usual life it must be removed from the machine and recycled in an approved way in accordance with local environmental regulations.

This service is usually operated by battery vendors.

Machine users that cannot find a suitable battery recycling facility should contact Terex for assistance.

13 Glossary of Terms

ANSI - American National Standards Institute.

Articulation Lock - Device preventing chassis elements moving during maintenance, transport etc.

Battery Isolator - Device to shut of electrical supply from the battery.

Chock - Device placed in front of and behind wheels to prevent movement.

Hour Meter - An instrument that records and displays the total number of hours the engine has been running.

ISO - International Standards Organisation

Linch Pin - Pin with spring loaded retaining clip.

Orbitrol - Hydrostatic steering unit - a valve controlled by the machines steering wheel that meters oil to the steering ram to turn the machine to the left or right.

Parking Brake - Mechanical device to prevent machine moving when not in use.

R Clip - A spring steel clip inserted through a hole in a pin to retain the pin in place.

ROPS - Roll Over Protective Structure - roll over bar.

Skip - Load carrying body.

Skip Prop - Mechanical device supporting a raised skip to prevent it lowering during maintenance should the hydraulic system fail.

Synchro Shuttle - Semi automatic gearbox where gears are changed without using a conventional clutch.

Transfer Box - Device to transmit engine power to the front and rear axles.

VIN Plate - Plate fixed to the machine recording the serial number and other identifying information.

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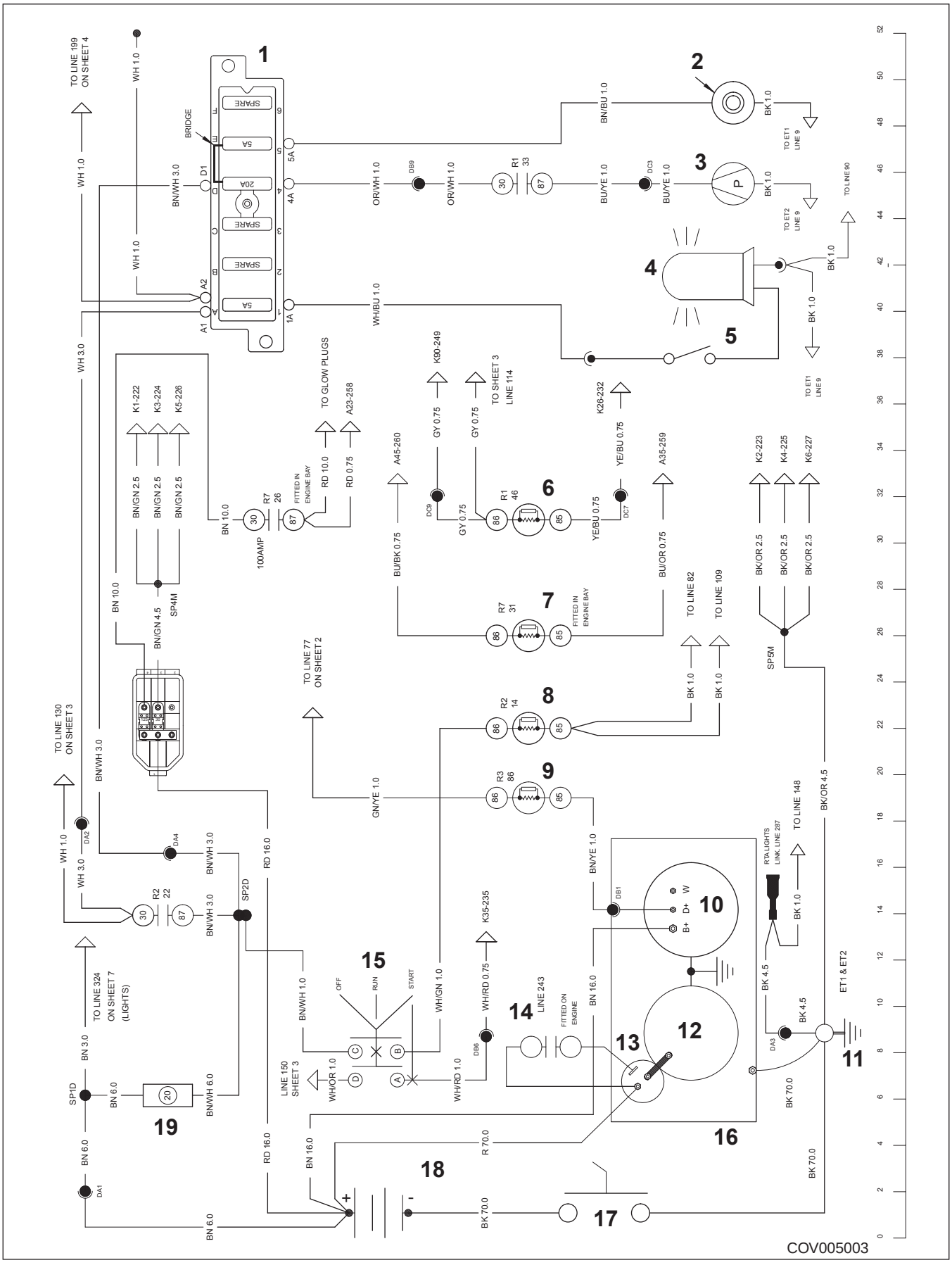
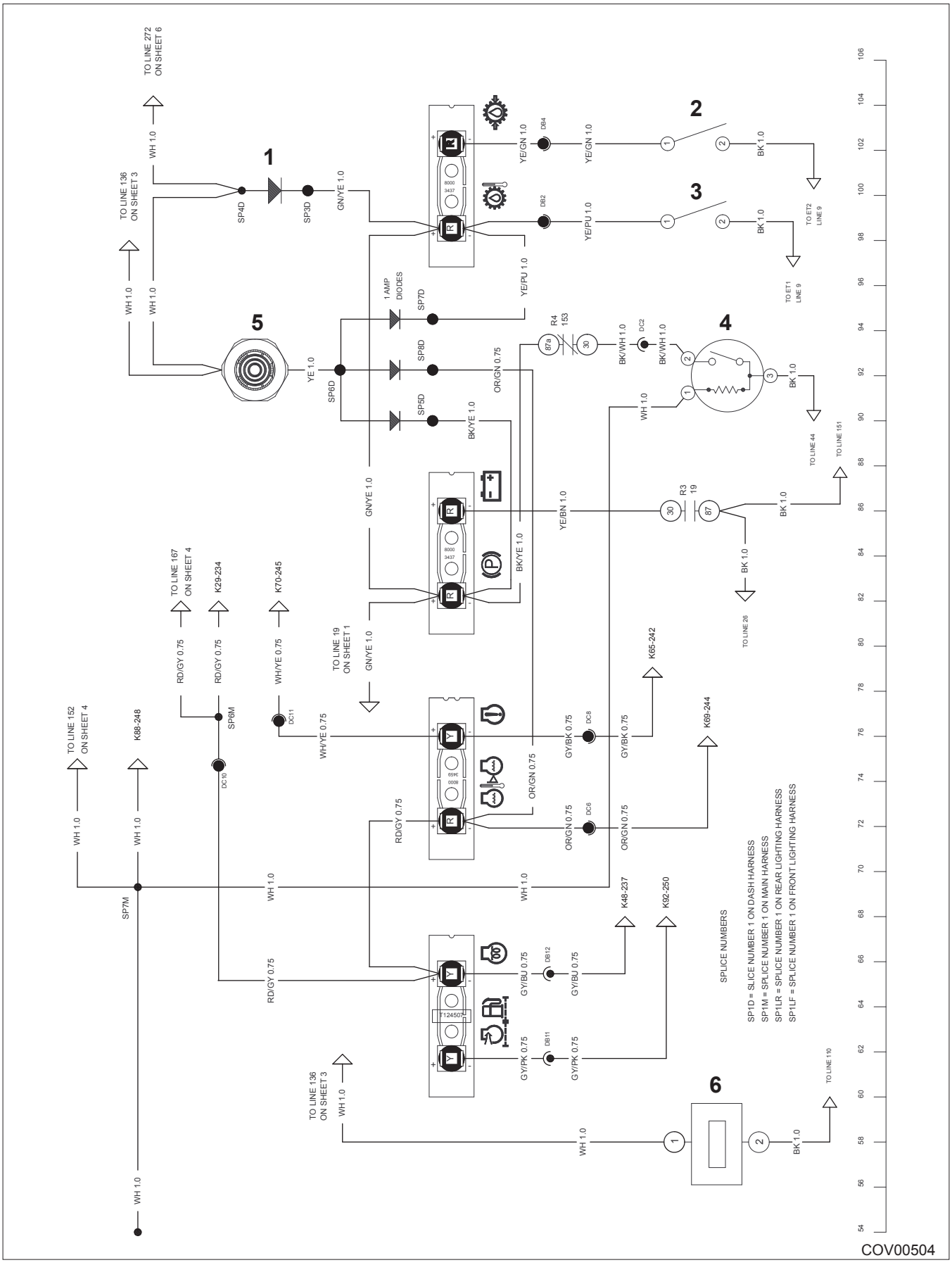
Appendix 1 - Electrical Diagrams



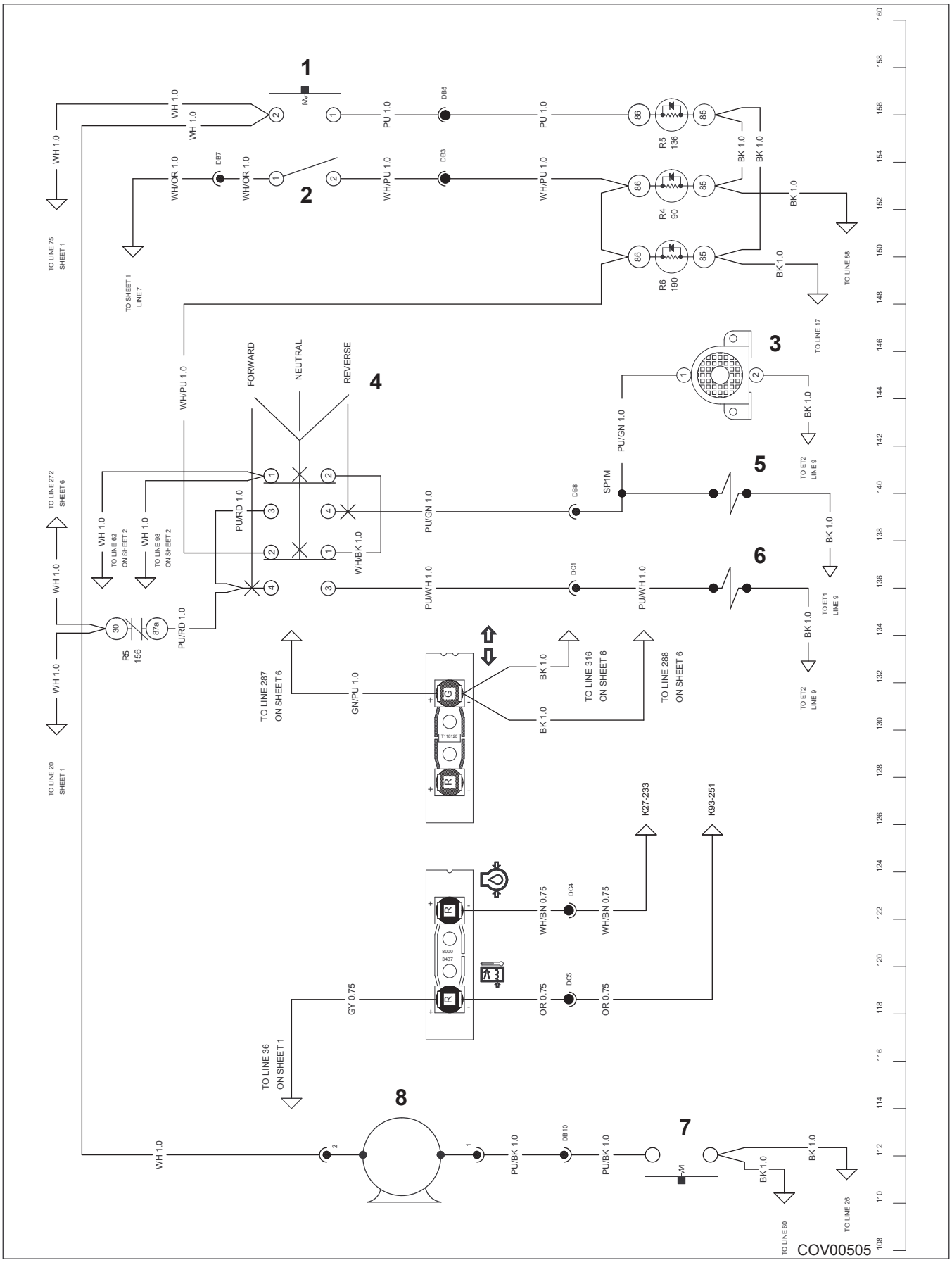
Electrical Diagram 1

1	Fuse Box	Colour Codes
2	Accessory Socket	RD - Red
3	Fuel Pump	WH - White
4	Beacon	YE - Yellow
5	Beacon Switch	GN - Green
6	Relay - Fuel Pump	BU - Blue
7	Relay - Glow Plug	GY - Grey
8	Relay - Ignition	OR - Orange
9	Relay - Charge	BK - Black
10	Alternator	PU - Purple
11	Chassis Earth Point	PK - Pink
12	Starter Motor	BN - Brown
13	Starter Solenoid	
14	Relay - Starter Motor - Fitted to Engine	
15	Key Switch	
16	Engine Block	
17	Battery Isolator	
18	Battery 12v	
19	Circuit Breaker	



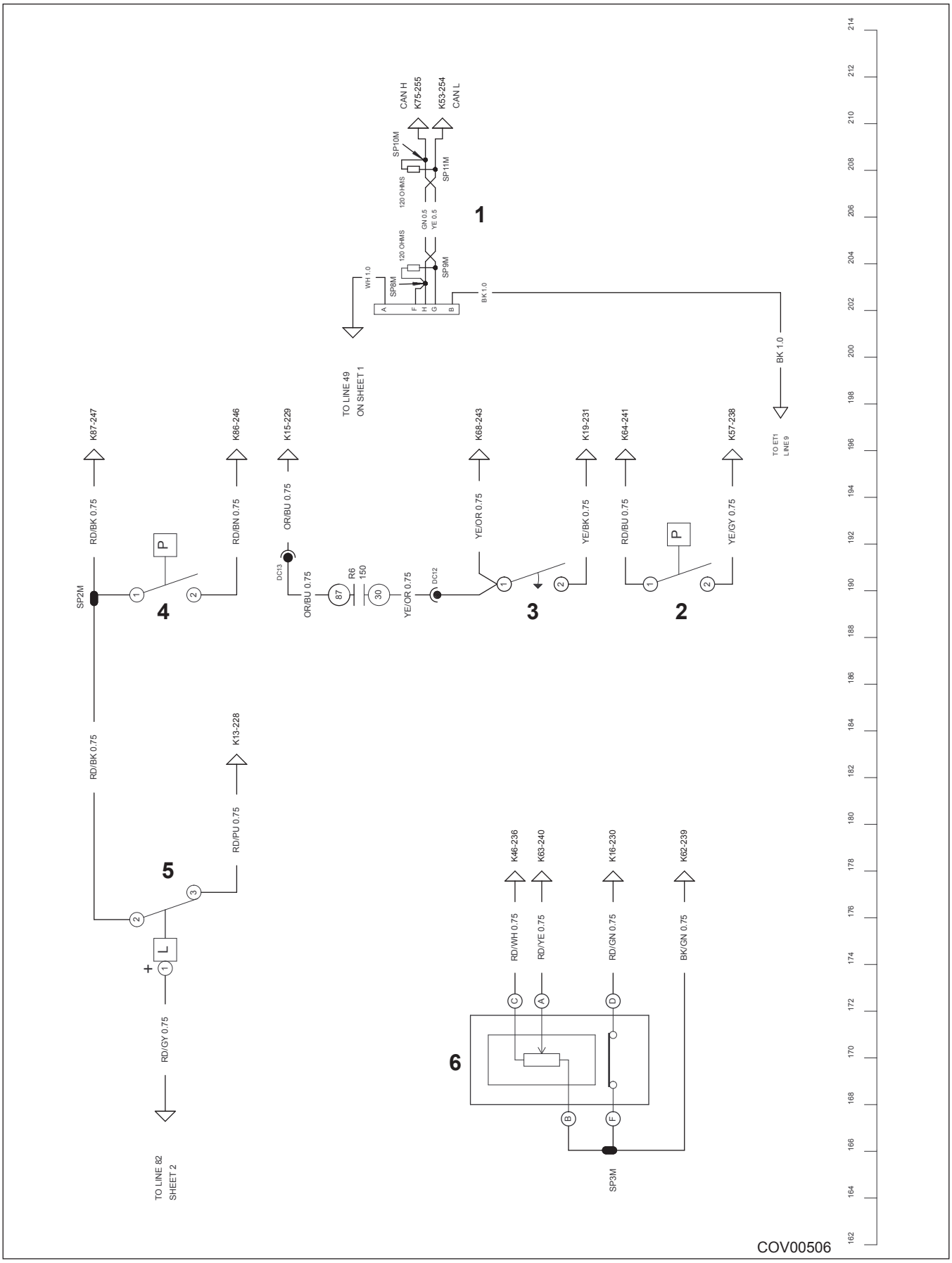
Electrical Diagram 2

1	Diode - 3A 600V	Colour Codes
2	Switch - Transmission Oil Pressure	RD - Red
3	Switch - Transmission Oil Temperature	WH - White
4	Switch - Parking Brake (Illustrated in Off Position)	YE - Yellow
5	Audible Warning	GN - Green
6	Hour Meter	BU - Blue
		GY - Grey
		OR - Orange
		BK - Black
		PU - Purple
		PK - Pink
		BN - Brown



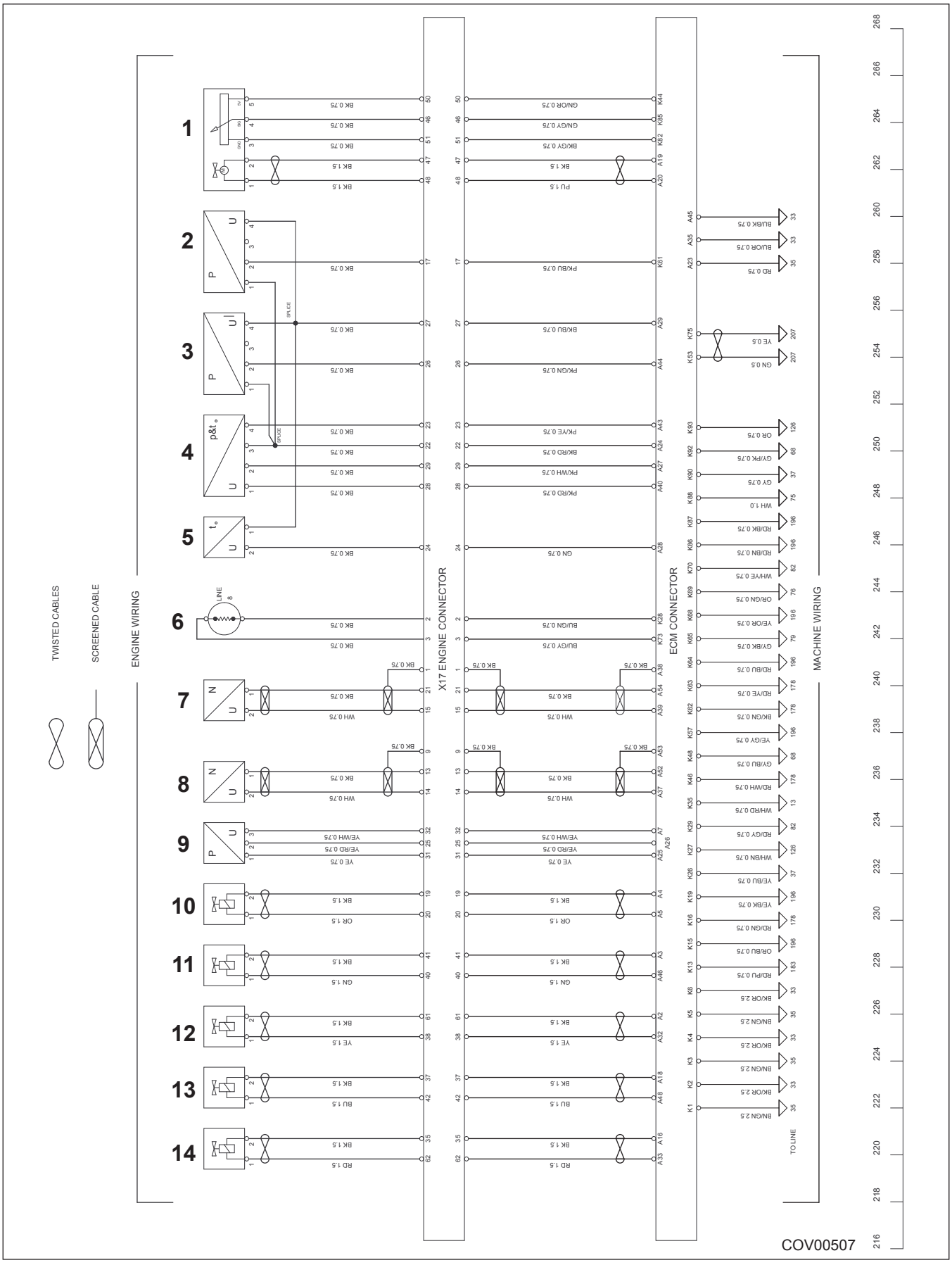
Electrical Diagram 3

1	Transmission Button	Colour Codes
2	Seat Switch	RD - Red
3	Reverse Alarm	WH - White
4	Forward/Reverse Switch	YE - Yellow
5	Solenoid - Drive Reverse	GN - Green
6	Solenoid - Drive forward	BU - Blue
7	Horn Button	GY - Grey
8	Horn	OR - Orange
		BK - Black
		PU - Purple
		PK - Pink
		BN - Brown



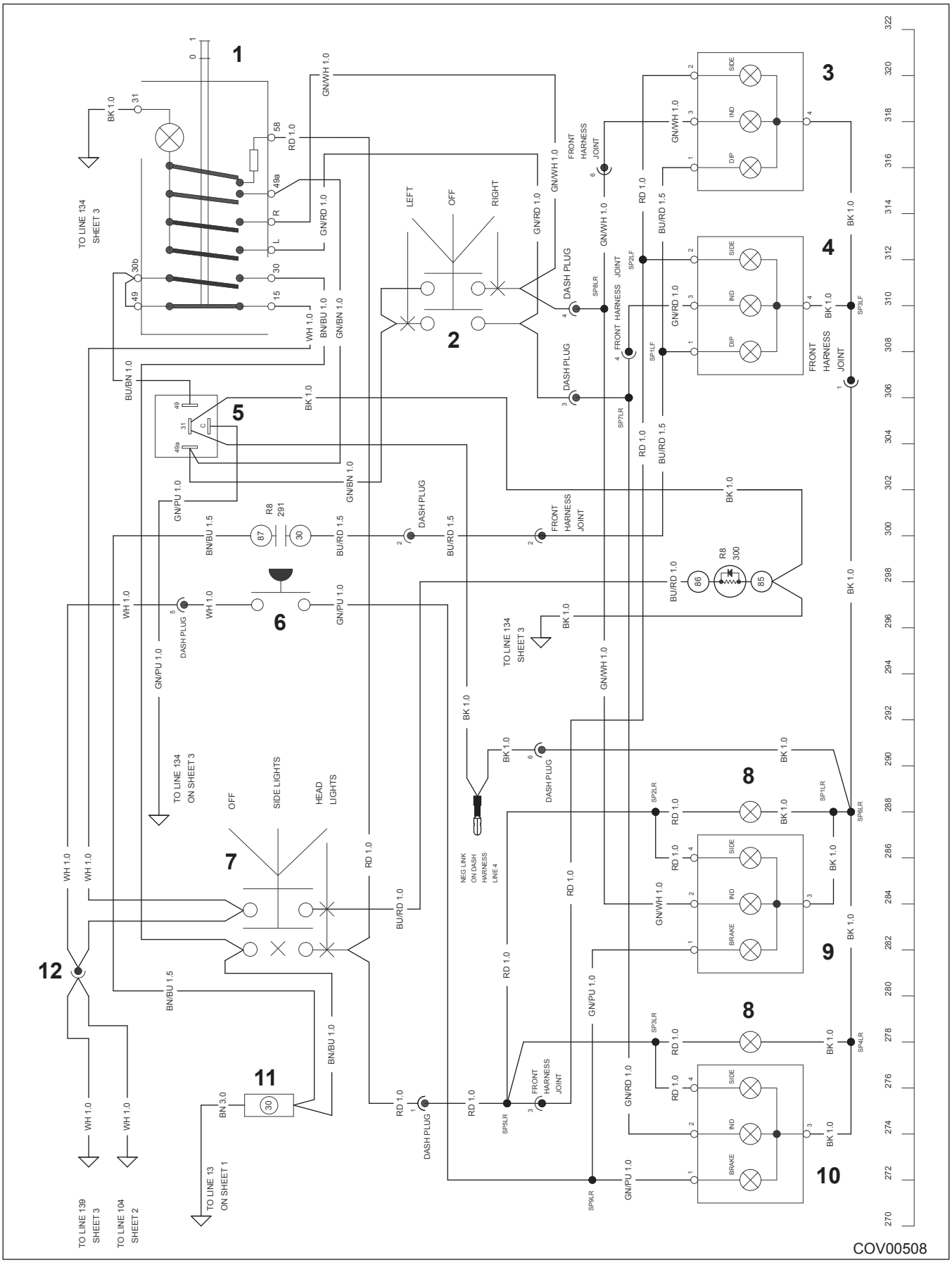
Electrical Diagram 4

1	Diagnostic Connector	Colour Codes
2	Switch - Water in Fuel	RD - Red
3	Switch - Diagnostic	WH - White
4	Switch - Air Filter	YE - Yellow
5	Switch - Coolant Level	GN - Green
6	Analogue Sensor on Throttle Pedal	BU - Blue
		GY - Grey
		OR - Orange
		BK - Black
		PU - Purple
		PK - Pink
		BN - Brown



Electrical Diagram 5

1	Exhaust Gas Recirculation	Colour Codes
2	Fuel - Low Pressure	RD - Red
3	Oil Pressure	WH - White
4	Boost Pressure/Temperature	YE - Yellow
5	Cooling Temperature	GN - Green
6	Start Relay	BU - Blue
7	Engine Speed - Crankshaft	GY - Grey
8	Engine Speed - Camshaft	OR - Orange
9	Fail Pressure - Fuel	BK - Black
10	Actuator MPROP	PU - Purple
11	Injector - Cyl 4	PK - Pink
12	Injector - Cyl 3	BN - Brown
13	Injector - Cyl 2	
14	Injector - Cyl 1	



Electrical Diagram 6 - Highway Lighting Option

1	Switch - Hazard Warning Lights	Colour Codes
2	Switch - Direction Indicators	RD - Red
3	Headlamp Assembly - RH	WH - White
4	Headlamp Assembly - LH	YE - Yellow
5	Flasher Unit	GN - Green
6	Switch - Brake Pressure	BU - Blue
7	Switch - Lighting	GY - Grey
8	Registration Plate Lights	OR - Orange
9	Rear Light Assembly - RH	BK - Black
10	Rear Light Assembly - LH	PU - Purple
11	Circuit Breaker	PK - Pink
12	Ignition Feed on Dash Harness	BN - Brown

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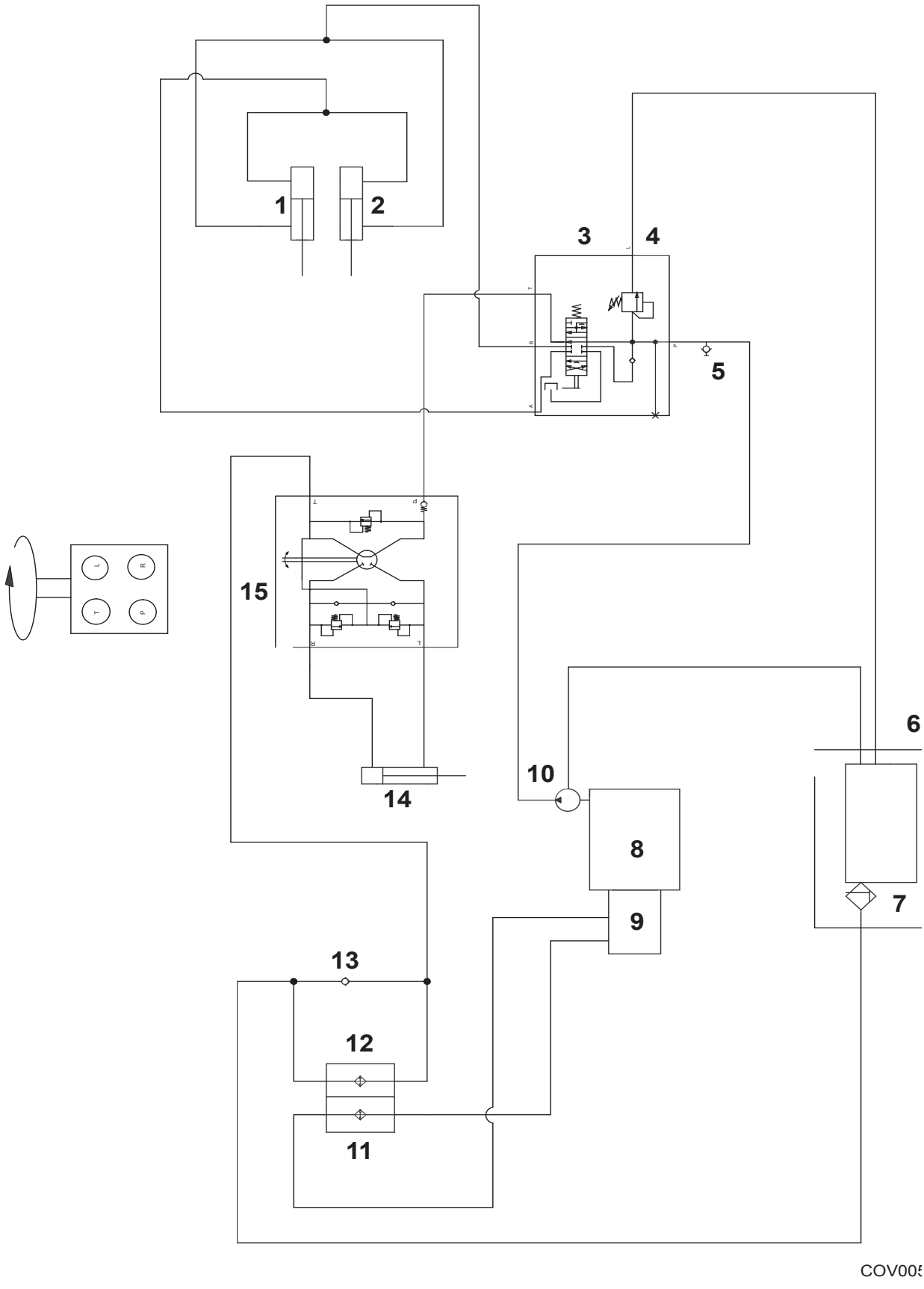
Appendix 2 - Hydraulic Diagrams



Hydraulic Diagram - TA9 & 10

1	Skip Ram - Right Hand
2	Skip Ram - Left Hand
3	Skip Control Valve
4	Relief Valve - System Pressure 195 Bar
5	Pressure Test Point - On Valve
6	Hydraulic Tank
7	Filter
8	Engine - Deutz TCD3.6
9	Gearbox
10	Pump - 26cc/rev (59.8 L/Min) Engine Mounted
11	Transmission Cooler
12	Hydraulic System Cooler
13	Check Valve - 10 Bar (Fitted to Chassis)
14	Steering Cylinder
15	Steering Unit

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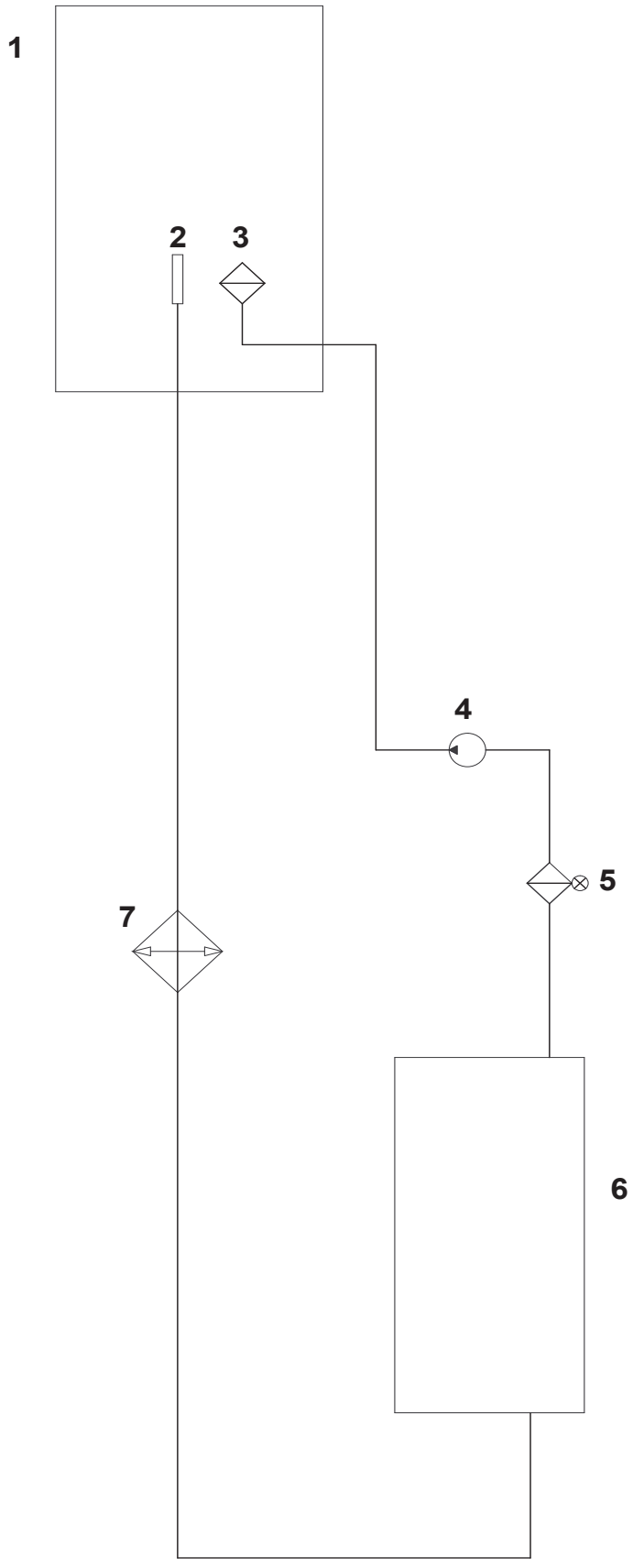
Appendix 3 - Fuel System Diagram



Fuel System Diagram

1	Engine
2	Fuel Return
3	Main Filter - Fuel In (Engine Mounted)
4	Lift Pump (Chassis Mounted)
5	Water Separator
6	Fuel Tank
7	Fuel Cooler (Part of Cooling Pack)

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STANDARD LIMITED NEW PRODUCT WARRANTY - CONSTRUCTION

THE COMPANIES LISTED AT THE BOTTOM MARGIN (each, a "Terex Construction Party" and collectively "Terex Construction" or the "Terex Construction Parties"), warrant the new Products manufactured or sold by them, respectively, to be free, under normal use and service, of any defects in manufacture or materials for the period of 12 months from (a) delivery to, and placement into service by the first user (including as a demonstrator) or (b) delivery to the first retail purchaser, or (c) will activate 6 months from delivery of the machine to the dealer regardless of use, whichever occurs first; provided that the Terex Construction Party which sold the Product at issue (as listed below) receives written notice of the defect within thirty (30) days of its discovery and Buyer establishes that (i) the equipment has been maintained and operated within the limits of rated and normal usage and (ii) the defect did not result in any manner from the intentional or negligent action or inaction by Buyer, its agents or employees. If requested by a Terex Construction Party, Buyer must return the defective equipment to an authorized distributor of the Products ("Distributor") and defective parts to the Terex Construction Party from which such parts were purchased, and if Buyer cannot establish that conditions (i) and (ii) above have been met, then this warranty shall not cover the alleged defect. The term "Products" shall include only the following equipment manufactured by the following Terex Construction Parties:

Terex GB Limited: - Tractor loader backhoes, site dumpers, compaction equipment, rollers

Terex Compact Germany GmbH: - Crawler excavators, mobile excavators, wheeled loaders, compact track loaders, skid steer loaders

Terex Deutschland GmbH: - Material Handlers

Terex Equipment Private Ltd: - Tractor loader backhoes, skid steer loaders, rollers

The obligation and liability of each Terex Construction Party under this warranty is expressly limited to, at each Terex Construction Party's sole option, repairing or replacing, with new or remanufactured parts or components, any part, which appears, upon inspection by the Terex Construction Party that manufactured or sold the equipment, to have been defective in manufacture or materials. Such parts shall be provided at no cost to the owner, FCA the Terex Construction Party parts facility from which the parts were purchased. This warranty shall be null and void if parts (including wear parts) other than genuine OEM Terex Construction parts are used in the equipment. No warranty shall cover any item on which serial numbers have been altered, defaced or removed.

Normal maintenance, adjustments, or maintenance/wear parts are not covered by this warranty and are the sole maintenance responsibility of Buyer.

No employee or representative is authorized to modify this warranty unless such modification is made in writing and signed by an authorized officer of the Terex Construction Party sought to be bound by such modification. The obligations of each Terex Construction Party under this warranty shall not include duty, taxes, environmental fees, including without limitation disposal or handling of tires, batteries, petrochemicals, or any other charges whatsoever, or any liability for indirect, incidental, or consequential damages. Improper maintenance, improper use, abuse, improper storage, operation beyond rated capacity, operation after discovery of defective or worn parts, or alteration or repair of the equipment by persons not authorized by the Terex Construction Party which sold such equipment shall render this warranty null and void.

Each Terex Construction Party reserves the right to inspect the installation of its respective Products and review maintenance procedures to determine if the failure was due to improper maintenance, improper use, abuse, improper storage, operation beyond rated capacity, operation after discovery of defective or worn parts, or alteration or repair of the equipment by persons not authorized by Terex Construction. Each Terex Construction Party reserves the right to make improvements or changes to its Products without incurring any obligation to make such changes or modifications to Products previously sold.

Parts Warranty: The Terex Construction Parties warrant the parts ordered from their respective Parts Departments to be free of defect in manufacture or materials for a period of 12 months from date of retail sale to the owner / user. Parts fitted during an equipment warranty repair will take on the remaining equipment warranty.

TRANSFERABILITY OF WARRANTY: The unexpired portion of this warranty may be transferred, provided that (i) the warranty has not been voided or breached by the transfer or prior to transfer, (ii) the appropriate Terex Construction Party has received warranty registration for the relevant Product and (iii) the transferee completes and returns to the appropriate Terex Construction Party the appropriate warranty transfer documentation which shall be provided on request. Contact your local Distributor for additional details.

THIS WARRANTY IS EXPRESSLY IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, EXPRESS OR IMPLIED (INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) AND ALL OTHER OBLIGATIONS OR LIABILITY ON THE PART OF THE TEREX CONSTRUCTION PARTIES. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE LIMITED WARRANTY CONTAINED HEREIN.

ITEMS NOT COVERED BY THIS WARRANTY

The following items are **NOT** covered under this Warranty (the following list is not exhaustive):

1. **Non-Distributor Sales:** Items sold by any individual, corporation, partnership or any other organization or legal entity that is not an authorized Distributor.

2. Replacement of assemblies: Each Terex Construction Party has the option to repair or replace any defective part or assembly. It is the policy of each Terex Construction Party to refuse claims for the replacement of a complete assembly that is field repairable by the replacement or repair of defective part(s) within the assembly.

3. Normal Operational Maintenance Services and Wear Parts: Maintenance services and wear parts are excluded from warranty claims. Maintenance services not covered include, but are not limited to, such items as: tune-up, lubrication, fuel or hydraulic system cleaning, brake inspection or adjustment, or the replacement of any service items such as filters or brake linings made in connection with normal maintenance services.

4. Transportation: Any damage caused by carrier handling is a transportation claim and should be filed immediately with the respective carrier.

5. Deterioration: Repairs, work required or parts exposed as the result of age, storage, weathering, lack of use, demonstration use, or for transportation of corrosive chemicals.

6. Secondary Failures: Should the Buyer continue to operate a machine after it has been noted that a failure has occurred, the Terex Construction Parties will not be responsible under the warranty for resultant damage to other parts due to that continued operation.

7. Workmanship of Others: The Terex Construction Parties do not accept responsibility for improper installation or labor costs of personnel other than authorized Distributor personnel.

8. Stop and Go Warranty: The Terex Construction Parties do not recognize "Stop and Go" warranties; after the period of warranty commences, it shall not be tolled for any reason. No action by either party shall operate to extend or revive this limited warranty without the prior written consent of Seller

9. Incidental or Consequential Damage: LIMITATIONS ON LIABILITY: **NOTWITHSTANDING ANYTHING TO THE CONTRARY CONTAINED IN THIS WARRANTY, NO TEREX CONSTRUCTION PARTY SHALL BE LIABLE FOR ANY, AND SPECIFICALLY DISCLAIMS ALL, INDIRECT, CONSEQUENTIAL, INCIDENTAL AND OTHER DAMAGES OR LOSSES OF ANY KIND (INCLUDING, BUT NOT LIMITED TO, LOST PROFITS, LOSS OF PRODUCTION, LOSS OF USE, DOWNTIME OR HIRE CHARGES, INCREASED OVERHEAD, LOSS OF BUSINESS OPPORTUNITY, DELAYS IN PRODUCTION, COSTS OF REPLACEMENT COMPONENTS, PENALTIES OF ANY KIND, FAILURE OF EQUIPMENT TO COMPLY WITH ANY APPLICABLE LAWS AND INCREASED COSTS OF OPERATION) THAT MAY ARISE FROM ANY BREACH OF THIS WARRANTY, WHETHER OR NOT CAUSED DIRECTLY OR INDIRECTLY BY ANY NEGLIGENCE OF ANY TEREX CONSTRUCTION PARTY. Nothing in this paragraph, however, shall operate to exclude Terex Construction's liability for death or personal injury. Buyer's sole remedy for breach of this warranty shall be limited to (at the sole option of the relevant Terex Construction Party) repair or replacement of the defective part.**

10. **Labor:** Neither Terex Construction nor any Terex Construction Party shall be responsible for related travel expenses such as meals and lodging; overtime or premium labor rates.

Terex Construction neither assumes nor authorizes any other person to assume for any Terex Construction Party any other liability in connection with the sale of any Terex Construction Party's equipment. This warranty shall not apply to any Terex Construction Party equipment or any part thereof which has been subject to misuse, alteration, abuse, negligence, accident, acts of God or sabotage. No action by any party shall operate to extend or revive this limited warranty without the prior written consent of the Terex Construction Party sought to be bound by such extension or revivification. The aggregate liability of the Terex Construction Parties shall in no event exceed the purchase price of the equipment, provided that nothing herein shall exclude liability of the Terex Construction Parties for death or personal injury.

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