

ENGINEERING BULLETIN

Ref Document No.	EB24001	Issue No.	1		
Subject	COALTRAM® Service Sheets Update				
Release Date	23 rd August 2024				

Purpose – Advise COALTRAM® owners and operators of updated mechanical service sheets for maintenance of the COALTRAM®.

Applicability - All in service COALTRAM® models - CT08, CT10, CT10LP

Information

PPKME are continually looking to improve and tailor our OEM service sheets to include necessary tasks and inspections for our equipment.

Selected updates to the COALTRAM® service sheets are summarised on page 2.

Recommendations

PPK recommend reviewing maintenance procedures against those recommended in the attached service sheets.

Engineering Department

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Document ID	Version No.	Page Ref.	Description			
DD-020 Code A – Daily	8-1023	-	[No changes]			
DD-021 Code B -	11-0824	8 of 11	Added CT08/CT10LP crowd cylinder checks			
Weekly/50hr	11 0024	11 of 11	Added autolube grease cartridge P/N 5520001696			
DD-022 Code C-	11-0824	10 of 14	Added CT08/CT10LP crowd cylinder checks			
Monthly/250hr	11-0024	14 of 14	Added autolube grease cartridge P/N 5520001696			
DD-023 Code C1 –	15-0824	10 of 15	Added CT08/CT10LP crowd cylinder checks			
3 Monthly/500hr		15 of 15	Added autolube grease cartridge P/N 5520001696			
DD-024		4 of 17	Added inspection of engine breather hose			
Code C2 –	16-0824	11 of 17	Added CT08/CT10LP crowd cylinder checks			
6 Monthly/1000hr		17 of 17	Added autolube grease cartridge P/N 5520001696			
DD-025		5 of 19	Added inspection of engine breather hose			
Code D -	16-0824	12 of 19	Added CT08/CT10LP crowd cylinder checks			
Yearly/2000hr		19 of 19	Added autolube grease cartridge P/N 5520001696			
		5 of 19	Added replacement of engine breather hose			
DD-026 Code D1 –	16-0824	12 of 19	Added CT08/CT10LP crowd cylinder checks			
2 Yearly/4000hr	10-0024	19 of 19	Added autolube grease cartridge P/N 5520001696			
		19 of 19	Added engine breather hose P/N 5520001806			
		5 of 23	Added replacement of engine breather hose			
DD-027		15 of 23	Added overhaul/replacement of lift, crowd, hitch cylinders			
Code D2 8000hr–	16-0824	22 of 23	Added autolube grease cartridge P/N 5520001696			
		22 of 23 Added front frame split cap bolt kits P/N 55 5520009362				
		22 of 23	Added engine breather hose P/N 5520001806			





COALTRAM® CT08/CT10/CT10LP - CODE A MAINTENANCE - DAILY/10 Hour

For detailed maintenance instructions refer to the Service Manual and relevant Workplace Instructions.

Regularly check compliance and upgrades relating to Industry Bulletins and Alerts.

VEHICLE PLANT NUMBER			HIRER /OWNER			
VEHICLE SERIAL NUMBER			DATE			
SITE			METHANE HOURS			
PROJECT/JOB NUMBER			MONEX HOURS			
IMMEDIATE REPAIRS COMPL	ETED:					
FUTURE REPAIRS REQUIRED	:					
TECHNICIANS						
PRINT NAME(S)		SIGN			DATE	
PRINT NAME(S)		SIGN			DATE	
SUPERVISORS						
PRINT NAME(S)		SIGN			DATE	





COALTRAM MAINTENANCE SAFETY INFORMATION

- Ensure that all safety information is read and understood before maintenance or repair task is performed
- The person who is undertaking the repair or maintenance task must be qualified and competent to complete the task being undertaken
- PPE. Appropriate PPE must be worn including Hi Visibility Clothing, Safety glasses, Protective Footwear, Hand Protection (as required) Hearing Protection (as required), hard hat (as required), Dust Masks (as required).
- Isolation locks, Danger Tags and Out of Service tags MUST be used in accordance with site requirements and machine specific isolation procedure.
- All lifting gear must have current inspection tag, be suitably rated for item being lifted, and be in good condition.
- Lifts requiring mechanical aids must only be conducted by trained and competent personnel.
- When lifting objects with mechanical aid, keep clear of all potential crush or pinch points.
- Keep clear of suspended loads. Use Safety line to control load when required.
- Manual Handling. Do not lift or move objects by hand that are too heavy to do so. When manual handling objects use correct manual handling techniques.
- Pinch Points. Keep all body parts clear of pinch points. Ensure hands and feet are clear when lifting and lowering objects
- Machine support stands. Ensure machine support stands are of suitable capacity and in serviceable condition.
- Slips, trips, falls. Ensure work area is clear of objects that could cause a slip, trip, Fall hazard.
- 11. Warning labels on machine must be observed



12. Prohibition labels on machine must be observed



 Information labels on machine must be observed



14. Service points on machine must be observed



- Climbing on top of machine. Always maintain 3 point contact when climbing on top of machine.
- Hot surfaces. Be aware of hot surfaces when machine has been running.
- Hot fluids. Be aware hot pressurised fluids. This includes engine coolant, hydraulic oil, transmission oil, diesel fuel.
- Chemical injuries: ensure that Material Safety Data Sheets are available and understood for all fluids used on machine.
- Stored energy. Ensure all stored energy has been depleted and raised cylinders supported before conducting repairs or maintenance.
- Accumulator pre-charge pressure. When all stored energy has been depleted the Nitrogen Pressure in the Brake Accumulator is 83 Bar (1,200 psi). DO NOT attempt to release pressure without correct equipment. DO NOT disassemble accumulator without releasing Nitrogen pressure to zero.
- Falling objects. Do not work under unsupported roof or in area where there is risk of falling objects.
- 22. Live Testing: Live testing must only be done after a task specific risk assessment (take 5 or similar) and in accordance with site requirements. The person operating the machine during live testing must be competent to operate the machine.
- Crush points: Ensure that Articulation lock is fitted when conducting maintenance or repairs in crush zones.

- 24. Working under boom: Do not enter under boom unless boom rated, designed for purpose supports have been fitted, boom has been lowered onto supports and machine is isolated.
- 25. Hydraulic injection: Ensure that all stored hydraulic energy has been depleted before disconnecting hydraulic hose or fitting. Do not use your hand to find a hydraulic leak. Use a piece of Cardboard or similar to check for leaks. In the event of a suspected hydraulic injection refer to site specific procedure for fluid injection.
- 26. Compressed air: Ensure air receiver has been isolated before conducting repairs on air system. If working on air receiver the air receiver must be depressurised before commencing work. NOTE: The accumulator on the transmission declutches valve will maintain a small volume of compressed air. Follow instructions on how to remove air accumulator pressure (behind gauge panel) to discharge.
- Current information: Ensure current information is available prior to commencing maintenance or repair task.
- Guards: Ensure all guards and covers removed during maintenance or repairs are replaced prior to starting machine.
- 29. Ventilation Ensure adequate ventilation when testing machine
- Do not conduct electric welding on machine unless the battery has been removed and Alternator disconnected by competent and authorised person.
- 31. Stay clear of rotating parts

- 32. Always use tools that are in good serviceable condition
- Take care to not damage wiring, hydraulic or air lines during repairs and maintenance.
- Ensure all electrical cables are placed in positions away from any possible mechanical damage and away from fuel lines.
- Gas Struts. (used on covers) contain compressed gas even when fully extended. Before removing, check for damage. Damage may cause an uncontrolled release of energy or exploding parts when removing strut.





RECOMMENDED COALTRAM MAINTENANCE AND COMPLIANCE SCHEDULE

REF. DOCS. AS3584.3, MDG1

MAINTENANCE EXAMINATION CODE	CALENDER BASED REGIME	ENGINE HOURS REGIME	
CODE A EXAMINATION - Maintenance	DAILY	10	
CODE B EXAMINATION - Maintenance	WEEKLY	50	
CODE C EXAMINATION - Maintenance	MONTHLY	250	
CODE C1 EXAMINATION - Maintenance	3 MONTHLY	500	
CODE C2 EXAMINATION - Maintenance	1000		
CODE D EXAMINATION – Maintenance	YEARLY	2000	
CODE D1 EXAMINATION - Maintenance	2 YEARLY	4000	
CODE D2 EXAMINATION - Maintenance	NOT YEARLY BASED	8000	
COMPLIANCE OVER	HAUL - Mechanical	2 YEARLY / or 2000 engine hours	
CODE D MECHANICAL CO	DMPLIANCE OVERHAUL	 whichever is achieved first 	
Mechanical Compliance Overhauls are recommended	to be completed by an accredited COALTRAM Agent	OR as approved by Site Manager using site historical evidence and risk assessments in conjunction with the	
and are to be aligned with Maintenance	COALTRAM Agent		
COMPLIANCE OVE	4 YEARLY		
CODE D ELECTRICAL CO	OR as approved by Site Manager using site historical evidence and risk assessments in conjunction with the		
Electrical Compliance Overhauls are recommended to	o be completed by an accredited COALTRAM Agent	COALTRAM Agent	



ENGINE SYSTEMS

GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
Vehicle Hours	engine hours and record on page 1. Record both MONEx screen and Methane display hours		
Engine	check unusual knocks and noises oil leaks starter motor is secure oil level for damage or loose items		
Engine Air Intake	 inspect air cleaner restriction indicators x 2 are serviceable and in the correct zone system for security and leaks 		
Cooling System	 inspect water pump FRAS V-belt tension and condition engine cooling fan FRAS V-belts tension and condition water pump belt tensioner pulley bearings for leaks fan blade condition/integrity for blockages in cores on both sides of the radiator radiator and pulley guards are in place and secure check coolant is in sight glass on header tank 		Note – All V-Belts and fan blades must be FRAS rated to comply with U/G coal regulations Recommended to use pre-mixed Caterpillar ELC (Extra Long life Coolant) or equivalent.
Fuel System	 inspect fuel hoses and fittings fuel lines for contact on any hot components fuel tank cap and strainer condition for leaks 		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
Pneumatic System	drain • water/contaminants from air tank inspect • leaks on system and repair/report		
Electronic Engine Managem ent System	check /Test		Note -Scrubber water must still be draining from test valve after engine shuts down for a positive test.
Mechanica I Flameproof System	 scrubber tank by fully draining at the lower socket to remove built up exhaust residue. If a ball valve is used in this port, a plug must accompany it to comply with safety regulations. inspect. all items for integrity, security, and damage fasteners on the mechanical flameproof joints – visual only add water conditioner to scrubber make up tank (if applicable to site). Note; do not over dose the scrubber water with conditioner 		To check intake/exhaust system for leaks operate engine/vehicle when at operating temperature so max turbo boost is achieved. This can be achieved at converter / torque stall. Spray intake joints with soapy water and check for bubbles while under this load. Note - bubbles or exhaust carbon near gaskets/joints indicate bypass/leaks on the exhaust system, bubbles only will appear on air intake leaks.
Particulate Filter System (Option 1)	 inspect condition, integrity and security of housing /components exhaust particulate filter and replace if required (If applicable to site) > 		Note! Replace filters as per site specific procedure – only approved filter elements to be fitted – Microfresh (5520000086) or Cosway (5520010707)
Ceramic Wall-Flow Filter System (CWFF) (Option 2	 Inspect Differential & Back Pressure Sensors, Hosing & Fittings Inlet & Outlet Temperature Sensors Electrical Cables HA110 (inc. push button, window, etc) (Visual) Junction box (Visual) HA116-H (Visual) Antenna Check Check filter element differential pressure using hi-idle test procedure > 		Hi-Idle Test Procedure (Ref. SWP CT 1.35) Pass Differential Pressure = < 15kPa @ High Idle If > 15 kPa then Filter Regen Required





VEHICLE SYSTEMS

GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
General	inspect		
	steering articulation lock		
	 boom safety support locks air, water and hydraulic hoses for damage 		
	 safety triangles 		
	wheel chocks		
Drive Train	inspect		
General	integrity of breather hoses/lines		
	security of axle mounting bolts and potential movement between		
	housings and frame >		
Drive Train	inspect		
Shafts	all drive shafts for clearance with hydraulic hoses and cables – through the full stagging explains the leak.		
	the full steering cycle lock to lock all driveline fasteners, shafts and universals for security and damage.		
Drive Train	inspect		
Lubrication	transmission oil level with engine idling		
	upbox oil level		
	for oil leaks		
Wheels and	inspect		
Tyres	for loose and missing wheel nuts		
	tyres for damage		
Hydraulic	inspect		
General	for damage		
	• for oil leaks		
	visually check accessible hydraulic hoses, fittings and componentsfunctionality of all hydraulics		
Hydraulic	inspect		
Lubrication	oil level at front swing open tank sight glass with engine stopped.		
	oil level at rear main tank sight glass with engine running		
Braking	inspect		
System	for leaks brake appration by practical test >		Refer site compliance
	 brake operation by practical test > 		'





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
Frame	 inspect for damage and missing parts all towing points all covers, guards, latches and hinges for operation, damage and wear ROPS/FOPS canopy for security, damage. 		
Vehicle Safety Interlocks	 check door interlock valve is operational - park brake applies when door opened neutral start valve is operational - vehicle will not start in FWD or REV door alarm latch function - when Park Brake is released, partly opendoor latch for audible horn response steering is isolated when park brake is applied 		
Cab Section	 inspect gauges are all operational seat condition, seat suspension for operation, airbag and shock absorber condition and operation horn operation via button on dash brake gauge is dropping rapidly to zero when service and/or park brake is applied emergency brake operation function by applying park brake while moving slowly service brake operation against full engine power in 2nd gear operation of all hydraulic functions steering operations door handle operation pinch point prevention lever on top of the door master hitch removal function isolates until door mounted twist knob is operated for operational interference around all control levers, brake and accelerator pedals condition and security of rubber boot on stick steering lever condition and security of rubber boot on main hydraulic lever 		
Vehicle Flameproof Electrical Systems	 inspect operation of all lights (including directional lighting if applicable) positioning of light directions/ projections check camera display and directional switching is operational (if applicable) Fifth light functionality if fitted 		Note! Do not hose water directly on alternator when at operating temperatures





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 check condition/integrity of following items hosing and cabling installation and mounting areas for potential hazards 		
Manual Greasing	grease		
Auto lube System (If Applicable)	inspect		
Fire System – Manual	 check fire extinguisher indicator gauge(s) are in the green zone bottle(s) condition condition of fire extinguisher brackets/clamps tags are fitted and in date on all fire extinguishers 		
Fire Suppression (If Applicable)	 check fire suppression system indicator gauge is in the green zone condition/integrity of fire suppression bottle, lines and nozzles 		





LUBRICANTS											
COMPONENT		FLUID TYPE						CAPACITY			
ENGINE				SAE 15W40)		30	L			
RADIATOR/ENGINE		PRE-MIX 100% SAE COOLANT						68L - FILL VERY SLOWLY, BLEED AIR FROM EXHAUST COOLING LINES			
UP BOX				90W			21	– FILL V	ERY SLC	WLY	
TRANSVERTER/TRANSMISSION				10W/30			25	L – CHE	CK WITH	H ENGINE RU	INNING
DIFFERENTIALS		85W140				18	18L EACH				
PLANETARIES		85W140			3.	3.7L EACH					
HYDRAULIC TANK		10W/30 – WET BRAKE COMPLIANT			W	160L – CHECK MAIN REAR TANK LEVEL WITH ENGINE RUNNING, AND FRONT TANK WITH ENGINE STOPPED					
FILTERS AND SERVICE ITEM PAR	T NIIMRERS				MAIN	ENANCE IN	FRVAL RE	JIIRFMF	PTN:		
DESCRIPTION	PART NUMBER				LKVALKE	ZOINEIME			1		
SERVICE KIT PART NUMBER		552000240									
FILTERS				Weekly / 50Hr							
Air Filter (Outer)	5520000240	1		•							





COALTRAM® CT08/CT10/CT10LP - CODE B MAINTENANCE - Weekly / 50 Hour

For detailed maintenance instructions refer to the Service Manual and relevant Workplace Instructions.

Regularly check compliance and upgrades relating to Industry Bulletins and Alerts.

VEHICLE PLANT NUMBER			HIRER /OWNER		
VEHICLE SERIAL NUMBER			DATE		
SITE			METHANE HOURS		
PROJECT/JOB NUMBER			MONEx HOURS		
IMMEDIATE REPAIRS COMPL	ETED:				
FUTURE REPAIRS REQUIRED	:				
TECHNICIANS					
PRINT NAME(S)		SIGN		DATE	
PRINT NAME(S)		SIGN		DATE	
SUPERVISORS	T				
PRINT NAME(S)		SIGN		DATE	



COALTRAM MAINTENANCE SAFETY INFORMATION

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- The person who is undertaking the repair or maintenance task must be qualified and competent to complete the task being undertaken
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- Isolation locks, Danger Tags and Out of Service tags MUST be used in accordance with site requirements and machine specific isolation procedure.
- All lifting gear must have current inspection tag, be suitably rated for item being lifted, and be in good condition.
- Lifts requiring mechanical aids must only be conducted by trained and competent personnel.
- When lifting objects with mechanical aid, keep clear of all potential crush or pinch points.
- Keep clear of suspended loads. Use Safety line to control load when required.
- Manual Handling. Do not lift or move objects by hand that are too heavy to do so. When manual handling objects use correct manual handling techniques.
- 8. Pinch Points. Keep all body parts clear of pinch points. Ensure hands and feet are clear when lifting and lowering objects
- Machine support stands. Ensure machine support stands are of suitable capacity and in serviceable condition.
- Slips, trips, falls. Ensure work area is clear of objects that could cause a slip, trip, Fall hazard.
- 11. Warning labels on machine must be observed



12. Prohibition labels on machine must be observed



 Information labels on machine must be observed



14. Service points on machine must be observed



- Climbing on top of machine. Always maintain 3 point contact when climbing on top of machine.
- Hot surfaces. Be aware of hot surfaces when machine has been running.
- Hot fluids. Be aware hot pressurised fluids. This includes engine coolant, hydraulic oil, transmission oil, diesel fuel.
- Chemical injuries: ensure that Material Safety Data Sheets are available and understood for all fluids used on machine.
- Stored energy. Ensure all stored energy has been depleted and raised cylinders supported before conducting repairs or maintenance.
- Accumulator pre-charge pressure. When all stored energy has been depleted the Nitrogen Pressure in the Brake Accumulator is 83 Bar (1,200 psi). DO NOT attempt to release pressure without correct equipment. DO NOT disassemble accumulator without releasing Nitrogen pressure to zero.
- Falling objects. Do not work under unsupported roof or in area where there is risk of falling objects.
- 22. Live Testing: Live testing must only be done after a task specific risk assessment (take 5 or similar) and in accordance with site requirements. The person operating the machine during live testing must be competent to operate the machine.
- Crush points: Ensure that Articulation lock is fitted when conducting maintenance or repairs in crush zones.

- Working under boom: Do not enter under boom unless boom rated, designed for purpose supports have been fitted, boom has been lowered onto supports and machine is isolated.
- 25. Hydraulic injection: Ensure that all stored hydraulic energy has been depleted before disconnecting hydraulic hose or fitting. Do not use your hand to find a hydraulic leak. Use a piece of Cardboard or similar to check for leaks. In the event of a suspected hydraulic injection refer to site specific procedure for fluid injection.
- 26. Compressed air: Ensure air receiver has been isolated before conducting repairs on air system. If working on air receiver the air receiver must be depressurised before commencing work. NOTE: The accumulator on the transmission declutches valve will maintain a small volume of compressed air. Follow instructions on how to remove air accumulator pressure (behind gauge panel) to discharge.
- Current information: Ensure current information is available prior to commencing maintenance or repair task.
- 28. Guards: Ensure all guards and covers removed during maintenance or repairs are replaced prior to starting machine.
- 29. Ventilation Ensure adequate ventilation when testing machine
- Do not conduct electric welding on machine unless the battery has been removed and Alternator disconnected by competent and authorised person.
- 31. Stay clear of rotating parts

Version: 11-0824

- 32. Always use tools that are in good serviceable condition
- Take care to not damage wiring, hydraulic or air lines during repairs and maintenance.
- Ensure all electrical cables are placed in positions away from any possible mechanical damage and away from fuel lines.
- Gas Struts. (used on covers) contain compressed gas even when fully extended. Before removing, check for damage. Damage may cause an uncontrolled release of energy or exploding parts when removing strut.

Document ID: DD-021 Code B – Coaltram CT08/10/10LP Section: Coaltram



RECOMMENDED COALTRAM MAINTENANCE AND COMPLIANCE SCHEDULE

REF. DOCS. AS3584.3, MDG1

MAINTENANCE EXAMINATION CODE	CALENDER BASED REGIME	ENGINE HOURS REGIME		
CODE A EXAMINATION - Maintenance	DAILY	10		
CODE B EXAMINATION - Maintenance	WEEKLY	50		
CODE C EXAMINATION - Maintenance	MONTHLY	250		
CODE C1 EXAMINATION - Maintenance	3 MONTHLY	500		
CODE C2 EXAMINATION - Maintenance	1000			
CODE D EXAMINATION – Maintenance	CODE D EXAMINATION – Maintenance YEARLY			
CODE D1 EXAMINATION - Maintenance	2 YEARLY	4000		
CODE D2 EXAMINATION - Maintenance	NOT YEARLY BASED	8000		
COMPLIANCE O	/ERHAUL - Mechanical	2 YEARLY / or 2000 engine hours		
CODE D MECHANICA	L COMPLIANCE OVERHAUL	 whichever is achieved first 		
Mechanical Compliance Overhauls are recommendated and the compliance of the complian	nded to be completed by an accredited COALTRAM Agent	OR as approved by Site Manager using site historical evidence and risk assessments in conjunction with the		
and are to be aligned with Mainten	COALTRAM Agent			
COMPLIANCE C	VERHAUL - Electrical	4 YEARLY		
CODE D ELECTRICA	OR as approved by Site Manager using site historical evidence and risk assessments in conjunction with the			
Electrical Compliance Overhauls are recommend	led to be completed by an accredited COALTRAM Agent	COALTRAM Agent		



ENGINE SYSTEMS

GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS		
Vehicle Hours	engine hours and record on page 1. Record both MONEx screen and Methane display hours		* This symbol beside an instruction indicates there may be other activities to complete in conjunction with this task, potentially in a different area of this document. Eg. When the top engine cover is removed, you need to clean the engine side of the radiator, inspect the belts, wash out the engine bay etc.*		
Engine	remove				
Engine Air Intake	replace				





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
Cooling	clean		
System	radiator thoroughly from the rear side and the front engine bay side with a high flow hose and detergent. Note! High pressure water at close range diagonally across radiator may fold over fins and restrict air flow		
	inspect		Note All V Polts and fan blades must be
	water pump FRAS V-belt tension and condition		Note – All V-Belts and fan blades must be FRAS rated to comply with U/G coal
	engine cooling fan FRAS V-belts tension and condition		regulations
	water pump belt tensioner pulley bearings		
	• for leaks		Recommended to use pre-mixed Caterpillar
	fan blade condition/integrity		ELC (Extra Long life Coolant) or equivalent.
	 for blockages in cores on both sides of the radiator 		
	 radiator and pulley guards are in place and secure 		
	 check coolant is in sight glass on header tank 		
	grease		
	fan and idler pulley		
Fuel System	drain		
	 sediments and potential water from the bottom of the primary fuel filter 		
	– record any contamination or water in the filter		
	sediments and potential water from fuel tank drain plug – record any		
	contamination or water in the fuel tank		
	inspect		
	fuel hoses and fittings		
	fuel lines for contact on any hot components Contact Con		
	 fuel tank cap and strainer condition for leaks 		
Pneumatic	drain		
System	water/contaminants from air tank		
, , ,	 water/contaminants from primary in-line water trap bowl in the 		
	articulation (no oil to be added)		
	inspect		
	leaks on system and repair/report		
	condition of all hoses and fittings		
	 scrubber make up tank pressure – 5-7psi (35-50kPa) 		
Electronic	check		
Engine	 both scrubber water shutdown sensor responses using test buttons – 		Do not apply high pressure water
Managemen	hold in to see the MONEx display to communicate low water. Longer		directly on electronic components
t System	than a few seconds will trigger a shutdown event		
	 scrubber water shutdown system via the upper ball valve drain point – 		
	isolate supply line and drain to this shutdown level		
	coolant loss operation via test valve		





	engine oil pressure loss via fest valve	
	 engine oil pressure loss via test valve inspect condition and integrity of all MONEx electronic components. the following for incorrect parts, unauthorised modifications, missing parts/guards/covers, loss of identifying labels, cracks, missing seals, damage, erosion, corrosion, deterioration, loose items, fatigue and contamination a) temperature sensors b) pressure sensors c) timing sensors d) water level sensors e) display screen f) throttle g) battery unit h) solenoids i) fasteners j) mountings k) connectors l) protective boots m) glands n) cable management and routing connectors for tamper proof cable tie. If missing cable tie, plugs and receptacles are uncoupled and inspected. Ensure connectors are clean, dry and seals are in place. Clean both male and female connectors with approved electrical cleaner/lubricant. Clean pin holes. Check for cracking insulators or discolouring. Ensure earthing is correct, the integrity of moisture and dust barriers intact, locking pins and fasteners are functional and secure. After reconnection, install tamper 	
	proof cable tie around connection. Test operation of the redundant path watchdog system (if fitted). Refer SWP CT2.24.	
Mechanical Flameproof System	clean scrubber tank by fully draining at the lower socket to remove built up exhaust residue. If a ball valve is used in this port, a plug must accompany it to comply with safety regulations. scrubber tank internally by hosing out with drain plug removed (use appropriate detergent as required) exhaust back pressure sensor adaptor by removing sensor from tank (use appropriate detergent as required) inspect.	Note! All parts, gaskets and fasteners relating the Code D mechanical integrity inspection must be genuine COALTRAM®parts to maintain approval compliance





	 scrubber vibration mounts for wear or damage and ensure area is free from debris compliance labels, present, secure and in date all items for integrity, security and damage fasteners on the mechanical flameproof joints turbo mount for looseness or evidence of broken studs inlet system for leaks by spraying joints with soapy water whilst under load at high idle> exhaust system for leaks by spraying joints with soapy water whilst under load at high idle> check for excessive blue exhaust smoke and irritating fumes at varying load and rev ranges. add water conditioner to scrubber make up tank (if applicable to site). Note; do not over dose the scrubber water with conditioner 	To check intake/exhaust system for leaks operate engine/vehicle when at operating temperature so max turbo boost is achieved. This can be achieved at converter / torque stall. Spray intake joints with soapy water and check for bubbles while under this load. Note - bubbles or exhaust carbon near gaskets/joints indicate bypass/leaks on the exhaust system, bubbles only will appear on air intake leaks.
Particulate Filter System (Option 1)	 inspect condition, integrity and security of housing /components exhaust particulate filter and replace if required (If applicable to site) > 	Note! Replace filters as per site specific procedure – only approved filter elements to be fitted – Microfresh (5520000086) or Cosway (5520010707)
Ceramic Wall-Flow Filter System (CWFF) (Option 2	Inspect Safety Isolation Valve x 2 Differential & Back Pressure Sensors, Hosing & Fittings Inlet & Outlet Temperature Sensors Flame Trap – Pressure sensor x 2 Electrical Cables HA110 (inc. push button, window, etc) (Visual) Junction box (Visual) HA116-H (Visual) Antenna Check Check filter element differential pressure using hi-idle test procedure >	Hi-Idle Test Procedure (Ref. SWP CT 1.35) Pass Differential Pressure = < 15kPa @ High Idle If > 15 kPa then Filter Regen Required

VEHICLE SYSTEMS

GROUP		MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
General		entire vehicle thoroughly. Fit wash down cover to MONEx display screen and avoid direct high pressure water on electrical devices		
	inspect			
	•	steering articulation lock		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 boom safety support locks air, water and hydraulic hoses for damage safety triangles wheel chocks 		
Drive Train General	 inspect integrity of breather hoses/lines security of axle mounting bolts and potential movement between housings and frame > 		
Drive Train Shafts	 inspect all drive shafts for clearance with hydraulic hoses and cables – through the full steering cycle lock to lock all driveline fasteners, shafts and universals for security and damage. 		
Drive Train Lubrication	 inspect transmission oil level with engine idling upbox oil level for oil leaks hub seals for leaks 		
Wheels and Tyres	 inspect for loose and missing wheel nuts tyres for damage for flat tyres 		Note! Always refer to tyre manufacturers for specific tyres pressures. Always follow site requirements for tyre inspections. Specs below are general ranges only Air filled - Front 8.0 Bar / 116 psi Air filled - Rear 6.0 Bar / 87 psi
Hydraulic General	 inspect for damage for oil leaks visually check accessible hydraulic hoses, fittings and components functionality of all hydraulics discolouration or aeration of the oil crowd cylinder (CT08/CT10LP only) - inspect for signs that the rod clevis has moved - look for gap between rod shoulder and clevis. crowd cylinder (CT08/CT10LP only) - Inspect all the clevis clamp bolts are in place and secure with no visible signs of movement. 		
Hydraulic Lubrication	 inspect return filter restriction indicator—if extended and protruding, replace filters and check again after running. oil level at front swing open tank sight glass with engine stopped oil level at rear main tank sight glass with engine running 		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS			
Braking System	 inspect for leaks brake operation by practical test > 		Refer site compliance			
Frame	 inspect for damage and missing parts all towing points all covers, guards, latches and hinges for operation, damage and wear ROPS/FOPS canopy for security, damage and compliance plate 					
Vehicle Safety Interlocks	 check door interlock valve is operational - park brake applies when door opened neutral start valve is operational - vehicle will not start in FWD or REV door alarm latch function - when Park Brake is released, partly open door latch for audible horn response steering is isolated when park brake is applied 					
Cab Section	 inspect gauges are all operational seat condition, seat suspension for operation, airbag and shock absorber condition and operation horn operation via button on dash brake gauge is dropping rapidly to zero when service and/or park brake is applied emergency brake operation function by applying park brake while moving slowly service brake operation against full engine power in 2nd gear operation of all hydraulic functions steering operations door handle operation pinch point prevention lever on top of the door master hitch removal function isolates until door mounted twist knob is operated for operational interference around all control levers, brake and accelerator pedals condition and security of rubber boot on stick steering lever condition and security of rubber boot on main hydraulic lever 					
Vehicle Flameproof Electrical Systems	 inspect operation of all lights (including directional lighting if applicable) positioning of light directions/ projections clean light lenses and any other enclosure windows 		Note! Do not hose water directly on alternate when at operating temperatures			





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	check camera display and directional switching is operational (if		
	applicable) • Fifth light functionality if fitted		
	check		
	condition/integrity of following items		
	hosing and cabling		
	installation and mounting areas for potential hazards		
	fastener security		
	alternators mountings and surrounding area for excessive debris. Clean		
	as required >		
	alternator bearings, mounts, drive covers and drive couplings for wear,		
	noise or damage		
Manual	grease		
Greasing	all points on vehicle, check all are receiving grease inspect		
	grease lines for damage/leaks		
Autolube	inspect		
System	operation of autolube greaser		
(If Applicable)	grease lines for leaks		
	replace		
	grease cartridges		
	check		
	visual evidence of grease at all joints		
	grease		
Fire System –	all lines manually via individual purge points		
Manual	 check fire extinguisher indicator gauge(s) are in the green zone 		
Marioai	bottle(s) condition		
	condition of fire extinguisher brackets/clamps		
	 tags are fitted and in date on all fire extinguishers 		
Fire	check		
Suppression (If	 fire suppression system indicator gauge is in the green zone 		
Applicable)	condition/integrity of fire suppression bottle, lines and nozzles		
	relevant statutory inspections have been completed (system to be		
Site	tagged/dated)		
Compliance	brake test has been carried out as per site regulations		
Compilarice	 gas test has been carried out as per site regulations 		
	gas rosi has booth camed out as pot sho togolahons		



LUBRICANTS											
COMPONENT				FLUID TYPI				CAPA	CITY		
ENGINE				SAE 15W4)			30L			
RADIATOR/ENGINE			PR	E-MIX 100% SAE (COOLANT					SLOWLY, BLE ING LINES	ED AIR FROM
UP BOX				90W				2L – FI	LL VERY SI	LOWLY	
TRANSVERTER/TRANSMISSION				10W/30				25L – 0	CHECK WI	ITH ENGINE R	JNNING
DIFFERENTIALS				85W140				18L EA	ACH		
PLANETARIES				85W140				3.7L EACH			
HYDRAULIC TANK		10W/30 – WET BRAKE COMPLIANT					160L – CHECK MAIN REAR TANK LEVEL WITH ENGINE RUNNING, AND FRONT TANK WITH ENGINE STOPPED				
FILTERS AND SERVICE ITEM PART	NUMBERS		MAINTENANCE INTERVA					L REQUI	REMENTS		
DESCRIPTION	PART NUMB	ER QTY	QTY CODE B								
SERVICE KIT PART NUMBER				5520000240							
FILTERS				Weekly / 50Hr							
Air Filter (Outer)	552000024	0 1		•							

Additional Parts not included in service kit

DESCRIPTION	PART NUMBER	QTY
Autolube grease cartridge 450gm	5520001696	2





COALTRAM® CT08/CT10/CT10LP - CODE C MAINTENANCE - Monthly /250 Hour

For detailed maintenance instructions refer to the Service Manual and relevant Workplace Instructions. Regularly check compliance and upgrades relating to Industry Bulletins and Alerts.

VEHICLE PLAN	T NUMBE	R			H	IIRER /	OWNER				
VEHICLE SERIA	L NUMBE	:R			С	DATE					
SITE					N	METHANE HOURS					
PROJECT/JOB	NUMBER				N	IONE x	HOURS				
IMMEDIATE RE	PAIRS C	OMPLETE	D:								
FUTURE REPA	IRS REQU	JIRED:									
										1	
Technician ID	Initials		Print Name			Sign				Date	
Technician ID	Initials		Print Name			Sign				Date	
Supervisor ID	Initials		Print Name			Sign				Date	



COALTRAM MAINTENANCE SAFETY INFORMATION

- Ensure that all safety information is read and understood before maintenance or repair task is performed
- The person who is undertaking the repair or maintenance task must be qualified and competent to complete the task being undertaken
- PPE. Appropriate PPE must be worn including Hi Visibility Clothing, Safety glasses, Protective Footwear, Hand Protection (as required) Hearing Protection (as required), hard hat (as required), Dust Masks (as required).
- Isolation locks, Danger Tags and Out of Service tags MUST be used in accordance with site requirements and machine specific isolation procedure.
- All lifting gear must have current inspection tag, be suitably rated for item being lifted, and be in good condition.
- Lifts requiring mechanical aids must only be conducted by trained and competent personnel.
- When lifting objects with mechanical aid, keep clear of all potential crush or pinch points.
- Keep clear of suspended loads. Use Safety line to control load when required.
- Manual Handling. Do not lift or move objects by hand that are too heavy to do so. When manual handling objects use correct manual handling techniques.
- Pinch Points. Keep all body parts clear of pinch points.
 Ensure hands and feet are clear when lifting and lowering objects
- Machine support stands. Ensure machine support stands are of suitable capacity and in serviceable condition.
- Slips, trips, falls. Ensure work area is clear of objects that could cause a slip, trip, Fall hazard.
- Warning labels on machine must be observed



12. Prohibition labels on machine must be observed



13. Information labels on machine must be observed



 Service points on machine must be observed



- Climbing on top of machine. Always maintain 3 point contact when climbing on top of machine.
- Hot surfaces. Be aware of hot surfaces when machine has been running.
- Hot fluids. Be aware hot pressurised fluids. This includes engine coolant, hydraulic oil, transmission oil, diesel fuel.
- Chemical injuries: ensure that Material Safety Data Sheets are available and understood for all fluids used on machine.
- Stored energy. Ensure all stored energy has been depleted and raised cylinders supported before conducting repairs or maintenance.
- Accumulator pre-charge pressure. When all stored energy has been depleted the Nitrogen Pressure in the Brake Accumulator is 83 Bar (1,200 psi). DO NOT attempt to release pressure without correct equipment. DO NOT disassemble accumulator without releasing Nitrogen pressure to zero.
- 21. Falling objects. Do not work under unsupported roof or in area where there is risk of falling objects.
- 22. Live Testing: Live testing must only be done after a task specific risk assessment (take 5 or similar) and in accordance with site requirements. The person operating the machine during live testing must be competent to operate the machine.
- 23. Crush points: Ensure that Articulation lock is fitted when conducting maintenance or repairs in crush zones.

- Working under boom: Do not enter under boom unless boom rated, designed for purpose supports have been fitted, boom has been lowered onto supports and machine is isolated.
- 25. Hydraulic injection: Ensure that all stored hydraulic energy has been depleted before disconnecting hydraulic hose or fitting. Do not use your hand to find a hydraulic leak. Use a piece of Cardboard or similar to check for leaks. In the event of a suspected hydraulic injection refer to site specific procedure for fluid injection
- 26. Compressed air: Ensure air receiver has been isolated before conducting repairs on air system. If working on air receiver the air receiver must be depressurised before commencing work. NOTE: The accumulator on the transmission declutches valve will maintain a small volume of compressed air. Follow instructions on how to remove air accumulator pressure (behind gauge panel) to discharge.
- Current information: Ensure current information is available prior to commencing maintenance or repair task.
- Guards: Ensure all guards and covers removed during maintenance or repairs are replaced prior to starting machine.
- Ventilation Ensure adequate ventilation when testing machine
- Do not conduct electric welding on machine unless the battery has been removed and Alternator disconnected by competent and authorised person.
- 31. Stay clear of rotating parts
- 32. Always use tools that are in good serviceable condition
- 33. Take care to not damage wiring, hydraulic or air lines during repairs and maintenance.
- Ensure all electrical cables are placed in positions away from any possible mechanical damage and away from fuel lines.
- 35. Gas Struts. (used on covers) contain compressed gas even when fully extended. Before removing, check for damage. Damage may cause an uncontrolled release of energy or exploding parts when removing strut.



RECOMMENDED COALTRAM MAINTENANCE AND COMPLIANCE SCHEDULE

REF. DOCS. AS3584.3, MDG1

MAINTENANCE EXAMINATION CODE	CALENDER BASED REGIME	ENGINE HOURS REGIME
CODE A EXAMINATION - Maintenance	DAILY	10 Nominal
CODE B EXAMINATION - Maintenance	WEEKLY	50 Nominal
CODE C EXAMINATION - Maintenance	MONTHLY	250 Nominal
CODE C1 EXAMINATION - Maintenance	3 MONTHLY	500 Nominal
CODE C2 EXAMINATION - Maintenance	6 MONTHLY	1000 Nominal
CODE D EXAMINATION – Maintenance	2 YEARLY	2000 - 2500
CODE D1 EXAMINATION - Maintenance	4 YEARLY	4000 - 5000
CODE D2 EXAMINATION - Maintenance	NOT YEARLY BASED	8000

COMPLIANCE OVERHAUL - Mechanical	2 YEARLY / or 2000 engine hours
CODE D MECHANICAL COMPLIANCE OVERHAUL	 whichever is achieved first
Mechanical Compliance Overhauls are recommended to be completed by an accredited COALTRAM Agent	OR as approved by Site Manager using site historical evidence and risk assessments in conjunction with the
and are to be aligned with Maintenance Examinations CODE C level or greater	COALTRAM Agent
COMPLIANCE OVERHAUL - Electrical	4 YEARLY
CODE D ELECTRICAL COMPLIANCE OVERHAUL	OR as approved by Site Manager using site historical evidence and risk assessments in conjunction with the
Electrical Compliance Overhauls are recommended to be completed by an accredited COALTRAM Agent	COALTRAM Agent



COALTRAM® ENGINE SYSTEMS

GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
Vehicle	check		
Hours	engine hours and record on page 1. Record both MONEx screen and Methane display hours		
Engine	remove		
_	covers and guards as required wash		Tensions - • engine mount bolts. 189 Nm (139 ft/lbs)
	 vehicle after fitting wash down cover to MONEx display screen and avoid direct high pressure water on electrical devices. Wash complete engine system and all engine bay areas of excessive coal, dust, oil, mud, and debris. 		
	 accumulated materials from the engine bay in a forward direction away from the radiator 		Record results with engine at operating temp –
	check		Oil Pressure (Min 140 kPa / 20psi) – Idle
	unusual knocks and noises - "I		Oil 1 lessore (Mili1 140 ki d / 20psi) – Idie
	oil leaksengine mounts and bolts		
	starter motor is secure		Oil Pressure (550± 140 kPa / 80± 20psi) - Max
	sump security / integrity and corrosion		Revs
	replace		
	engine oil		Idle & flight RPM results
	engine oil filter		RPM Spec Result
	turbo saviour oil filter		Idle 830-880
	re-check		Flight 2220 +/- 50
	after running engine		
	• oil level		
	 leaks oil pressure> Record result at operating temperature 		
	 idle, flight rpm > Record result 		
Engine Air	replace		
Intake	air cleaner outer filter element		
	inspect		
	air cleaner restriction indicators x 2 are serviceable and in the correct		
	zone		
	system for security and leaks		
	hosing/pipe integrity		
	air charge pipe doesn't contact/rub on other components ir also graps be using into grith.		
	air cleaner housing integrity		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
Cooling	clean		
System	radiator thoroughly from the rear side and the front engine bay side with a high flow hose and detergent. Note! High pressure water at close range diagonally across radiator may fold over fins and restrict air flow		
	replace		
	water pump FRAS V-belt - ensure correct tension after test running for a short period of time		
	inspect		Note – All V-Belts and fan blades must be
	 engine cooling fan FRAS V-belts tension and condition 		FRAS rated to comply with U/G coal
	water pump belt tensioner pulley bearings		regulations
	condition and security of radiator hoses		
	• for leaks		
	 fan hub and tensioner bearings for excessive movement radiator mounting bolts 		
	fan blade condition/integrity		Recommended to use pre-mixed Caterpillar
	 fan position in shroud (ensure centralised and correct protrusion 18mm to 22mm of blade protruding past shroud towards engine 		ELC (Extra Long life Coolant) or equivalent.
	 for blockages in cores on both sides of the radiator 		
	radiator and pulley guards are in place and secure		
	coolant is correct mix - coloured pre-mix >		
	check coolant is in sight glass on header tank		
	radiator cap condition and ensure 13psi rating		
	grease		
	fan and idler pulley		
Fuel System	drain		
	 sediments and potential water from fuel tank drain plug – record any contamination or water in the fuel tank 		
	replace		
	all fuel filters		
	inspectfuel hoses and fittings		
	 tuel hoses and tittings fuel lines for contact on any hot components 		
	 fuel tank cap and strainer condition 		
	fuel gauge level/operation/condition		
	• for leaks		
Pneumatic	drain		
System	water/contaminants from air tank		
	 water/contaminants from primary in-line water trap bowl in the articulation (no oil to be added) 		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 water/contaminants from secondary in-line water trap bowl behind the MONEx display dash panel (no oil to be added) clean air charge Y strainer 		
Electronic Engine Managemen † System	inspect air compressor delivery hose condition – ensure it's a braided steel PTFE type air tank relief valve operation (pull ring to ensure releases air and reseals) leaks on system and repair/report compressor cut out pressure 115-120psi (800–850 kPa) condition of all hoses and fittings scrubber make up tank pressure – 5-7psi (35-50kPa) safety circuit reduced pressure – 90-100psi (620–690 kPa) – located behind the MONEx display dash panel air compressor braided steel PTFE delivery line and fittings internally for any accumulated carbon – replace parts if carbon build up present check both scrubber water shutdown sensor responses using test buttons – hold in to see the MONEx display to communicate low water. Longer than a few seconds will trigger a shutdown event scrubber water shutdown system via the upper ball valve drain point – isolate supply line and drain to this shutdown level coolant loss operation via test valve money and the strain of this shutdown level coolant loss operation via test valve money are sequence function is correct. Apart from other visual inspections this would indicate safety controls and cabling are serviceable at time of inspection inspect condition and integrity of all MONEx electronic components. the following for incorrect parts, unauthorised modifications, missing parts/guards/covers, loss of identifying labels, cracks, missing seals, damage, erosion, corrosion, deterioration, loose items, fatigue and contamination a) temperature sensors b) pressure sensors c) timing sensors d) water level sensors e) display screen		These mechanical inspections do not negate recommended 4 yearly regional and site statutory electrical inspection regimes. Electrical Statutory Inspections must be performed by trained and authorised personnel. Refer separate statutory electrical inspection sheet. Do not apply high pressure water directly on electronic components





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	f) throttle g) battery unit h) solenoids i) fasteners j) mountings k) connectors l) protective boots m) glands n) cable management and routing • connectors for tamper proof cable tie. If missing cable tie, plugs and receptacles are to be uncoupled and inspected. Ensure connectors are clean, dry and seals are in place. Clean both male and female connectors with approved electrical cleaner/lubricant. Clean pin holes. Check for cracking insulators or discolouring. Ensure earthing is correct, the integrity of moisture and dust barriers intact, locking pins and fasteners are functional and secure. After reconnection, install tamper proof cable tie around connection. Test operation of the redundant path watchdog system (if fitted). Refer SWP CT2.24.		
	MONEx Fault Log history – manual screen search and record problematic events and/or historic concerns of interest AND/OR electronic upload and capture of data using the MONEx LRS (Log Retrieval System) >		Earlier MONEx versions do not have the ability to use the LRS electronic upload
Mechanical Flameproof System	 clean scrubber tank by fully draining at the lower socket to remove built up exhaust residue. If a ball valve is used in this port, a plug must accompany it to comply with safety regulations. scrubber tank internally by hosing out with drain plug removed (use appropriate detergent as required) y-piece strainer in scrubber fill line inspect. scrubber vibration mounts for wear or damage and ensure area is free from debris compliance labels, present, secure and in date all items for integrity, security and damage fasteners on the mechanical flameproof joints turbo mount for looseness or evidence of broken studs 		DES Explosion Protected Joint Torque Spec - All M8: 22Nm/16lbft (wet) - All M10: 44Nm / 32lbft (wet) - All 3/8"unc: 51Nm / 38lbft (wet)





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 inlet system for leaks by spraying joints with soapy water whilst under load at high idle> exhaust system for leaks by spraying joints with soapy water whilst under load at high idle> check for excessive blue exhaust smoke and irritating fumes at varying load and rev ranges. add water conditioner to scrubber make up tank (if applicable to site). Note; do not over dose the scrubber water with conditioner scrubber static water level when stopped using the scrubber dipstick drain sediments/contamination from the scrubber make-up tank via the tanks bottom drain plug – remove cap to depressurise first 		To check intake/exhaust system for leaks operate engine/vehicle when at operating temperature so max turbo boost is achieved. This can be achieved at converter / torque stall. Spray intake joints with soapy water and check for bubbles while under this load. Note - bubbles or exhaust carbon near gaskets/joints indicate bypass/leaks on the exhaust system, bubbles only will appear on air intake leaks.
Particulate Filter System (Option 1)	 inspect condition, integrity and security of housing /components for exhaust leaks exhaust particulate filter and replace if required (If applicable to site) > 		Note! Replace filters as per site specific procedure – only approved filter elements to be fitted – Microfresh (5520000086) or Cosway (5520010707)
Ceramic Wall-Flow Filter System (CWFF) (Option 2	 Inspect Safety Isolation Valve x 2 Differential & Back Pressure Sensors, Hosing & Fittings Inlet & Outlet Temperature Sensors Ex Gland, adapters, spigots, conduits, etc (Monitor and Shutdown System, CWFF) Flame Trap – Pressure sensor x 2 Electrical Cables HA110 (inc. push button, window, etc) (Visual) Junction box (Visual) HA116-H (Visual) Antenna Check Check filter element differential pressure using hi-idle test procedure > 		Hi-Idle Test Procedure (Ref. SWP CT 1.35) Pass Differential Pressure = < 15kPa @ High Idle If > 15 kPa then Filter Regen Required



COALTRAM® VEHICLE SYSTEMS

GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
General	 wash entire vehicle thoroughly. Fit wash down cover to MONEx display screen and avoid direct high pressure water on electrical devices 		
	inspect		
	steering articulation lock		
	 boom safety support locks air, water and hydraulic hoses for damage 		
	to facility and the		
	safety friangleswheel chocks		
Drive Train	inspect		
General	all component breathers (transmission, differentials, upbox)		Front axle bolts - 633Nm (467ftlb)
	 integrity of breather hoses/lines 		Rear axle bolts - 366Nm (270ftlb)
	security of upbox mounting bolts		
	 security of transverter mounts and bolts 		
	 security of axle mounting bolts and potential movement between 		
	housings and frame >		
Drive Train	inspect		
Shafts	front axle driveshaft universals/slip joint for wear rear and a driveshaft universals (die joint for wear).		
	 rear axle driveshaft universals/slip joint for wear driveline centre bearings x 2 		
	 transverter to centre bearing universals/slip joint for wear 		
	 upbox / transverter drive shaft universals/slip joint for wear 		
	 all drive shafts for clearance with hydraulic hoses and cables – through 		
	the full steering cycle lock to lock		
	all driveline fasteners, check they are all tight by using appropriate tools		
Drive Train	Replace		
Lubrication	transmission filter		
	inspect		
	transmission oil level with engine idling		
	 all four wheel ends/planetary oil levels front and rear differential centre oil levels 		
	 upbox oil level for oil leaks after test driving 		
	 hub seals for leaks 		
Wheels and	inspect		Note! Always refer to tyre manufacturers fo
Tyres	for loose and missing wheel nuts		specific tyres pressures. Always follow site
,	tyres for damage and record condition and % of tread remaining >		requirements for tyre inspections. Specs below are nominal ranges only





	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 tyre pressures with gauge (if pneumatic or air/water filled) > tyre ID labels are in place (e.g. foam filled/solid/ water filled) for compliance labels if pneumatic wheel rim and lock ring for damage/ missing parts 		Air filled - Front 7 - 8.0 Bar / 100 -116 psi Air filled - Rear 5 - 6.0 Bar / 70 -87 psi
Hydraulic General	 inspect condition of all cylinders crowd cylinder (CT08/CT10LP only) - inspect for signs that the rod clevis has moved - look for gap between rod shoulder and clevis. crowd cylinder (CT08/CT10LP only) - Inspect all the clevis clamp bolts are in place and secure with no visible signs of movement. for oil leaks visually check accessible hydraulic hoses, fittings and components functionality of all hydraulics discolouration or aeration of the oil 		
Hydraulic Lubrication	 inspect return filter restriction indicator– if extended and protruding, replace filters and check again after running. oil level at front swing open tank sight glass with engine stopped oil level at rear main tank sight glass with engine running hydraulic tank breather condition and security air operated oil fill pump for operation 		
Braking System	 inspect all accessible brake hoses. brake functions using either the NSW MDG39 or QLD Brake Test Form > 		Refer site compliance section below
Frame	 inspect all towing, lifting, tie down points and safety chains integrity of crowd cylinder clevises, bolts and bosses all covers, guards, latches and hinges for operation, damage and wear master hitch lock cylinder operation. Check eject/retract direction is correct ROPS/FOPS canopy for security, damage and compliance plate implement /attachment profile with template or against approved GA drawings. master hitch cradle profile with template or against approved GA drawings. security of oscillation/bolster mount bolts inspect all split caps trunnion fasteners on the articulation, boom, 		CT08 /10 Common Torque Specifications Hitch / QDS cap bolt 1480Nm (1092ftlb) Steer cylinder cap bolt 366Nm (270ftlb) Articulation cap bolt 633Nm (467ftlb) Canopy M22 499Nm (368ftlb) Canopy M30 1253Nm (924ftlb) CT08 Specific Torque Specifications Crowd cylinder cap bolt 1480Nm (1092ftlb) CT10 Specific Torque Specifications





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	bucket tongue fasteners		 Crowd cylinder cap bolt 633Nm (467ftlb Boom Pivot cap bolt 1480Nm (1092ftlb) Z Bar Pivot cap bolt 1562Nm (1152ftlb)
	check		 Z Bai Pivoi Cap Boli 1362Niti (1132Nib) Dog bones cap bolt 1480Nm (1092ftlb)
	correct operation and record wear in -		Dog bories cap boil 1400((iii (1072iiib)
	articulation points		
	lift arm		
	bucket pins		
	steering pins		
	bolster (axle oscillation points)		
	tilt/crowd cylinder		
	lift cylinders		
	master hitch cylinder(s)		
Vehicle	check		
Safety	 door interlock valve is operational - park brake applies when door 		
Interlocks	opened		
	 neutral start valve is operational - vehicle will not start in FWD or REV 		
	 door alarm latch function - when Park Brake is released, partly open 		
	door latch for audible horn response		
	hydraulic door interlock valve function - park brake will not release		
	when hydraulic door is opened		
	 rig bolter/hydraulics – boom hydraulic functions will not operate whilst 		
	MONEx rig bolter mode engaged		Delay Time
	Steering is isolated when park brake is applied		
Cab Section	inspect		
	gauges are all operational		Coolant Temp
	all gauge pressures and temps at operating temperature – record		
	results >		Transposiasia na Tamana
	 seat condition, seat suspension for operation, airbag and shock 		Transmission Temp
	absorber condition and operation		Hydraulic Temp
	seat base, swivel and mountings for security/integrity		Try ardone formp
	all upholstery in cabin		Brake Accum Pressure
	horn operation via button on dash		
	brake gauge is dropping rapidly to zero when service and/or park		Brake Release Pressure
	brake is applied		
	emergency brake operation function by applying park brake while		Transmission Pressure
	moving slowly		Eng. Oil Brossure
	service brake operation against full engine power in 2 nd gear		Eng. Oil Pressure
	operation of all hydraulic functions		Air Pressure
	steering operations		, 1 1033010
	door handle operation		Back Pressure
	pinch point prevention lever on top of the door		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
Vehicle Flameproof Electrical Systems	 master hitch removal function isolates until door mounted twist knob is operated for operational interference around all control levers, brake and accelerator pedals condition and security of rubber boot on stick steering lever condition and security of rubber boot on main hydraulic lever inspect operation of all lights (including directional lighting if applicable) check camera display and directional switching is operational (if applicable) 		These inspections do not negate regional and site statutory electrical inspection regimes. Electrical Statutory Inspections must be performed by trained and authorised.
Vehicle Flameproof Electrical Systems	 Methane system for damage Fifth light functionality if fitted check condition/integrity of following items hosing and cabling installation and mounting areas for potential hazards fastener security alternators mountings and surrounding area for excessive debris. Clean as required > alternator bearings, mounts, drive covers and drive couplings for wear, noise or damage Alternator bearings		performed by trained and authorised personnel. Electrical Flameproof enclosures are recommended to be re-certified every 4 years as a minimum. Code D electrical integrity inspections and testing must be carried out by a quality assured, certified and registered company. Use your local COALTRAM® Agent for this process. Refer separate statutory electrical inspection sheet.
			Note! Do not hose water directly on alternator when at operating temperatures
Manual Greasing	grease		
Autolube System (If Applicable)	 inspect operation of autolube greaser grease lines for leaks 		
	replace grease cartridges check		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	visual evidence of grease at all joints		
	grease		
	all lines manually via individual purge points		
Fire System –	check		
Manual	 fire extinguisher indicator gauge(s) are in the green zone bottle(s) condition 		
	condition of fire extinguisher brackets/clamps		
	tags are fitted and in date on all fire extinguishers		
Fire	check		
Suppression	fire suppression system indicator gauge is in the green zone		
(If	 condition/integrity of fire suppression bottle, lines and nozzles 		
Applicable)	 relevant statutory inspections have been completed (system to be 		
	tagged/dated)		
Site	check		
Compliance	brake test has been carried out as per site regulations		>Refer to the vehicles approval documents
	gas test has been carried out as per site regulations		for base line gas testing
	 exhaust gas emissions are within baseline testing specification limits > 		>Test with engine at operating temperature





LUBRICANTS				
COMPONENT	FLUID TYPE	CAPACITY		
ENGINE	SAE 15W40	23L		
RADIATOR/ENGINE	PRE-MIX 100% SAE COOLANT	68L - Fill Very Slowly, Bleed Air From Exhaust Cooling Lines		
UP BOX	90W(Alternatively 80W/90 or 85W/90 or similar)	2L – Fill Very Slowly		
TRANSVERTER/TRANSMISSION	10W/30	25L – Check With Engine Running		
DIFFERENTIALS	85W140 (Alternatively HLS 90W)	18L Each		
PLANETARIES	85W140 (Alternatively HLS 90W)	3.7L Each		
HYDRAULIC TANK	10W/30 – WET BRAKE COMPLIANT (Alternatively Tellus 68 or equivalent)	160L – Check Main Rear Tank Level With Engine Running, And Front Tank With Engine Stopped		

FILTERS AND SERVICE ITEM PART NUMBERS			MAINTENANCE INTERVAL REQUIREMENTS						
DESCRIPTION	PART NUMBER	QTY		CODE C					
SERVICE KIT PART NUMBER				5520001777					
FILTERS									
Air Filter (Outer)	5520000240	1		•					
Engine Oil Filter	5520000494	1		•					
Turbo Saviour Filter	5520000177	1		•					
Fuel Filter – Primary Water Separator	5520000648	1		•					
Fuel Filter – Secondary	5520001765	1		•					
Transverter Filter	5520001237	1		•					
Transverter Filter Housing O Ring	9236201751	1		•					
PARTS				•					
Water Pump Belt	5520000384	1		•					
Water Pump Belt (Relocated Tensioner)	5520011040	1#		#					

[#]Item not included in standard kit.

Additional Parts not included in service kit

DESCRIPTION	PART NUMBER	QTY
Autolube grease cartridge 450gm	5520001696	2





COALTRAM® CT08/CT10/CT10LP - CODE C1 MAINTENANCE - 3 Monthly / 500 hour

For detailed maintenance instructions refer to the Service Manual and relevant Workplace Instructions. Regularly check compliance and upgrades relating to Industry Bulletins and Alerts.

VEHICLE PLANT N	UMBER		HIRER /	OWNER			
VEHICLE SERIAL N	IUMBER		DATE				
SITE			METHAI	NE HOURS			
PROJECT/JOB NU	MBER		MONEX	HOURS			
IMMEDIATE REPAIR	RS COMPLETED:						
							_
FUTURE REPAIRS RI	EQUIRED:						
Technician ID I	nitials	Print Name	Sign			Date	
Technician ID I	nitials	Print Name	Sign			Date	
Supervisor ID I	nitials	Print Name	Sign			Date	



COALTRAM MAINTENANCE SAFETY INFORMATION

- Ensure that all safety information is read and understood before maintenance or repair task is performed
- The person who is undertaking the repair or maintenance task must be gualified and competent to complete the task being undertaken
- PPE. Appropriate PPE must be worn including Hi Visibility Clothing, Safety glasses, Protective Footwear, Hand Protection (as required) Hearing Protection (as required), hard hat (as required), Dust Masks (as required).
- Isolation locks, Danger Tags and Out of Service tags MUST be used in accordance with site requirements and machine specific isolation procedure.
- All lifting gear must have current inspection tag, be suitably rated for item being lifted, and be in good condition.
- Lifts requiring mechanical aids must only be conducted by trained and competent personnel.
- When lifting objects with mechanical aid, keep clear of all potential crush or pinch points.
- Keep clear of suspended loads. Use Safety line to control load when required.
- Manual Handling. Do not lift or move objects by hand that are too heavy to do so. When manual handling objects use correct manual handling techniques.
- Pinch Points. Keep all body parts clear of pinch points. Ensure hands and feet are clear when lifting and lowering objects
- Machine support stands. Ensure machine support stands are of suitable capacity and in serviceable condition.
- 10. Slips, trips, falls. Ensure work area is clear of objects that could cause a slip, trip, Fall hazard.
- 11. Warning labels on machine must be observed



12. Prohibition labels on machine must be



13. Information labels on machine must be observed



14. Service points on machine must be observed



- Climbing on top of machine. Always maintain 3 point contact when climbing on top of machine.
- Hot surfaces. Be aware of hot surfaces when machine has been running.
- 17. Hot fluids. Be aware hot pressurised fluids. This includes engine coolant, hydraulic oil, transmission oil, diesel fuel.
- Chemical injuries: ensure that Material Safety Data Sheets are available and understood for all fluids used on
- 19. Stored energy. Ensure all stored energy has been depleted and raised cylinders supported before conducting repairs or maintenance.
- Accumulator pre-charge pressure. When all stored energy has been depleted the Nitrogen Pressure in the Brake Accumulator is 83 Bar (1,200 psi). DO NOT attempt to release pressure without correct equipment. DO NOT disassemble accumulator without releasing Nitrogen pressure to zero.
- 21. Falling objects. Do not work under unsupported roof or in area where there is risk of falling objects.
- 22. Live Testing: Live testing must only be done after a task specific risk assessment (take 5 or similar) and in accordance with site requirements. The person operating the machine during live testing must be competent to operate the machine.
- 23. Crush points: Ensure that Articulation lock is fitted when conducting maintenance or repairs in crush zones.

- Working under boom: Do not enter under boom unless boom rated, designed for purpose supports have been fitted, boom has been lowered onto supports and machine is isolated.
- Hydraulic injection: Ensure that all stored hydraulic energy has been depleted before disconnecting hydraulic hose or fitting. Do not use your hand to find a hydraulic leak. Use a piece of Cardboard or similar to check for leaks. In the event of a suspected hydraulic injection refer to site specific procedure for fluid injection
- Compressed air: Ensure air receiver has been isolated before conducting repairs on air system. If working on air receiver the air receiver must be depressurised before commencing work. NOTE: The accumulator on the transmission declutches valve will maintain a small volume of compressed air. Follow instructions on how to remove air accumulator pressure (behind gauge panel) to discharge.
- 27. Current information: Ensure current information is available prior to commencing maintenance or repair
- Guards: Ensure all guards and covers removed during maintenance or repairs are replaced prior to starting
- 29. Ventilation Ensure adequate ventilation when testing
- Do not conduct electric welding on machine unless the battery has been removed and Alternator disconnected by competent and authorised person.
- 31. Stay clear of rotating parts

- 32. Always use tools that are in good serviceable condition
- Take care to not damage wiring, hydraulic or air lines during repairs and maintenance.
- Ensure all electrical cables are placed in positions away from any possible mechanical damage and away from
- Gas Struts. (used on covers) contain compressed gas even when fully extended. Before removing, check for damage. Damage may cause an uncontrolled release of energy or exploding parts when removing strut.





RECOMMENDED COALTRAM MAINTENANCE AND COMPLIANCE SCHEDULE

REF. DOCS. AS3584.3, MDG1

MAINTENANCE EXAMINATION CODE	CALENDER BASED REGIME	ENGINE HOURS REGIME
CODE A EXAMINATION - Maintenance	DAILY	10 Nominal
CODE B EXAMINATION - Maintenance	WEEKLY	50 Nominal
CODE C EXAMINATION - Maintenance	MONTHLY	250 Nominal
CODE C1 EXAMINATION - Maintenance	3 MONTHLY	500 Nominal
CODE C2 EXAMINATION - Maintenance	6 MONTHLY	1000 Nominal
CODE D EXAMINATION – Maintenance	2 YEARLY	2000 - 2500
CODE D1 EXAMINATION - Maintenance	4 YEARLY	4000 - 5000
CODE D1 EXAMINATION - Maintenance	NOT YEARLY BASED	8000

COMPLIANCE OVERHAUL - Mechanical	2 YEARLY / or 2000 engine hours
CODE D MECHANICAL COMPLIANCE OVERHAUL	 whichever is achieved first
Mechanical Compliance Overhauls are recommended to be completed by an accredited COALTRAM Agent	OR as approved by Site Manager using site historical
and are to be aligned with Maintenance Examinations CODE C level or greater	evidence and risk assessments in conjunction with the COALTRAM Agent
COMPLIANCE OVERHAUL - Electrical	4 YEARLY
CODE D ELECTRICAL COMPLIANCE OVERHAUL	OR as approved by Site Manager using site historical evidence and risk assessments in conjunction with the
Electrical Compliance Overhauls are recommended to be completed by an accredited COALTRAM Agent	COALTRAM Agent



COALTRAM® ENGINE SYSTEMS

GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
Vehicle Hours	engine hours and record on page 1. Record both MONEx screen and Methane display hours		
Engine	remove		Tensions - • engine mount bolts. 189 Nm(139 ft/lbs)
	 vehicle after fitting wash down cover to MONEx display screen and avoid direct high pressure water on electrical devices. Wash complete engine system and all engine bay areas of excessive coal, dust, oil, mud, and debris. accumulated materials from the engine bay in a forward direction away from the radiator check unusual knocks and noises oil leaks engine mounts and bolts starter motor is secure sump security / integrity and corrosion water ingress into engine flywheel housing – remove bottom plug and record contents clean engine breather replace engine oil engine oil filter turbo saviour oil filter oil level leaks oil pressure> Record result at operating temperature idle, flight rpm > Record result 		Record results with engine at operating temp – Oil Pressure (Min 140 kPa / 20psi) – Idle Oil Pressure (550± 140 kPa / 80± 20psi) - Max Revs Idle & flight RPM results RPM
Engine Air Intake	replace • air cleaner inner and outer filter elements		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 inspect air cleaner restriction indicators x 2 are serviceable and in the correct zone system for security and leaks hosing/pipe integrity air charge pipe doesn't contact/rub on other components air cleaner housing integrity test operation of choker/strangler valve as per workplace instructions 		Refer to Standard Work Procedures or the Service Manual for detailed Choker test instructions. Incorrect choker testing can cause engine damage
Cooling System	 radiator thoroughly from the rear side and the front engine bay side with a high flow hose and detergent. Note! High pressure water at close range diagonally across radiator may fold over fins and restrict air flow replace water pump belt tensioner pulley bearing (not required until 1,000hr service if greaseable pulley installed) water pump FRAS V-belt - ensure correct tension after test running for a short period of time engine cooling fan FRAS V-belts - ensure correct tension after test running for a short period of time inspect condition and security of radiator hoses for leaks fan hub and tensioner bearings for excessive movement radiator mounting bolts fan blade condition/integrity fan position in shroud (ensure centralised and correct protrusion 18mm to 22mm of blade protruding past shroud towards engine for blockages in cores on both sides of the radiator radiator and pulley guards are in place and secure coolant is correct mix - coloured pre-mix > check coolant is in sight glass on header tank radiator cap condition and ensure 13psi rating grease fan and idler pulley 		Note – All V-Belts and fan blades must be FRAS rated to comply with U/G coal regulations Recommended to use pre-mixed Caterpillar ELC (Extra Long life Coolant) or equivalent.
Fuel System	drain		
	sediments and potential water from fuel tank drain plug – record any contamination or water in the fuel tank		
	replace		
	all fuel filters		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
Pneumatic System	inspect Ins		
Electronic Engine Managemen t System	 behind the MONEx display dash panel check both scrubber water shutdown sensor responses using test buttons – hold in to see the MONEx display communicate low water. Longer than a few seconds will trigger a shutdown event scrubber water shutdown system via the upper ball valve drain point – isolate supply line and drain to this shutdown level coolant loss operation via test valve engine oil pressure loss via test valve MONEx start sequence function is correct. Apart from other visual inspections this would indicate safety controls and cabling are serviceable at time of inspection 		These mechanical inspections do not negate recommended 4 yearly regional and site statutory electrical inspection regimes. Electrical Statutory Inspections must b performed by trained and authorised personnel. Refer separate statutory electrical inspection sheet.





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	condition and integrity of all MONEx electronic components. the following for incorrect parts, unauthorised modifications, missing parts/guards/covers, loss of identifying labels, cracks, damage, erosion, corrosion, deterioration, loose items, fatigue and contamination a) temperature sensors b) pressure sensors c) timing sensors d) water level sensors e) display screen f) throttle g) battery unit h) solenoids i) fasteners j) mountings k) connectors l) protective boots m) glands n) cable management and routing connectors for tamper proof cable tie. If missing cable tie, plugs and receptacles are to be uncoupled and inspected. Ensure connectors are clean, dry and seals are in place. Clean both male and female connectors with approved electrical cleaner/lubricant. Clean pin holes. Check for cracking insulators or discolouring. Ensure earthing is correct, the integrity of moisture and dust barriers intact, locking pins and fasteners are functional and secure. After reconnection, install tamper proof cable tie around connection. test operation of the redundant path watchdog system (if fitted). Refer SWP CT2.24. record MONEx Fault Log history – manual screen search and record problematic events and/or historic concerns of interest AND/OR electronic upload and capture of data using the MONEx LRS (Log		Earlier MONEx versions do not have the ability to use the LRS electronic upload
Mechanical Flameproof System	 clean scrubber tank by fully draining at the lower socket to remove built up exhaust residue. If a ball valve is used in this port, a plug must 		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 scrubber tank internally by hosing out with drain plug removed (use appropriate detergent as required) y-piece strainer in scrubber fill line inspect. intake flametrap condition - Remove MONEx sensors on intake nose cone and through access holes visually inspect flametrap element. May require use of a light to view clearly. If surface shows signs of contamination, remove and clean air inlet flametrap, fitting new gaskets on assembly. Note in comments column if item required cleaning scrubber operating linkages and floats scrubber operating linkages and floats scrubber vibration mounts for wear or damage and ensure area is free from debris complicance labels, present, secure and in date all items for integrity, security and damage fasteners on the mechanical flameproof joints turbo mount for looseness or evidence of broken studs inlet system for leaks by spraying joints with soapy water whilst under load at high idle> exhaust system for leaks by spraying joints with soapy water whilst under load at high idle> check for excessive blue exhaust smoke and irritating fumes at varying load and rev ranges. add water conditioner to scrubber make up tank (if applicable to site). Note; do not over dose the scrubber water with conditioner scrubber static water level when stopped using the scrubber dipstick drain sediments/contamination from the scrubber make-up tank via the tanks bottom drain plug – remove cap to depressurise first 		DES Explosion Protected Joint Torque Spec - All M8: 22Nm/16lbft (wet) - All M10: 44Nm / 32lbft (wet) - All 3/8" UNC: 51Nm / 38lbft (wet) To check intake/exhaust system for leaks operate engine/vehicle when at operating temperature so max turbo boost is achieved. This can be achieved at converter / torque stall. Spray intake joints with soapy water and check for bubbles while under this load. Note - bubbles or exhaust carbon near gaskets/joints indicate bypass/leaks on the exhaust system, bubbles only will appear on air intake leaks.
Particulate Filter System (Option 1)	 inspect condition, integrity and security of housing /components exhaust particulate filter and replace if required (If applicable to site) > housing door/lid seals; replace if not sealing 		Note! Replace filters as per site specific procedure – only approved filter elements to be fitted – Microfresh (5520000086) Cosway (5520010707)
Ceramic Wall-Flow Filter System (CWFF) (Option 2	 Inspect Safety Isolation Valve x 2 Differential & Back Pressure Sensors, Hosing & Fittings Inlet & Outlet Temperature Sensors Diesel Oxidation Catalyst element - remove and inspect for damage> Filter element - remove and inspect for damage> 		Filter removal requires opening flameproof joints. Only to be conducted by competent, authorised persons. Ensure new gaskets are available prior to reassembly. Ref. SWP CT 3.53 Hi-Idle Test Procedure (REF. SWP CT 1.35)





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 Ex Gland, adapters, spigots, conduits, etc (Monitor and Shutdown System, CWFF) Electrical Cables HA110 (inc. push button, window, etc) (Visual) Junction box (Visual) HA116-H (Visual) Antenna Check 		Pass Differential Pressure = < 15 kPa @ High Idle If > 15 kPa then Filter Regen Required Filter removal requires opening flameproof joints. Only to be conducted by competent, authorised persons. Ensure new gaskets are available prior to reassembly. Ref. SWP CT 3.53
	 Check filter element differential pressure using hi-idle test procedure Remove + Clean Flame Trap – Pressure sensor x 2 		Flame traps must be cleaned as per OEM recommendations

COALTRAM® VEHICLE SYSTEMS

GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
General	entire vehicle thoroughly. Fit wash down cover to MONEx display screen and avoid direct high pressure water on electrical devices inspect		
	 steering articulation lock boom safety support locks air, water and hydraulic hoses for damage safety triangles wheel chocks 		
Drive Train General	 clean all component breathers (transmission, differentials, upbox) inspect integrity of breather hoses/lines security of upbox mounting bolts security of transverter mounts and bolts security of axle mounting bolts and potential movement between housings and frame. Check if 0.2mm feeler gauge can pass between mating faces > differential centre fasteners 		Front axle bolts - 633Nm (467ftlb) Rear axle bolts - 366Nm (270ftlb) If feeler gauge passes between faces, remove bolts, lower axle clean mating faces and install new bolts
Drive Train Shafts	 inspect front axle driveshaft universals/slip joint for wear rear axle driveshaft universals/slip joint for wear driveline centre bearings x 2 transverter to centre bearing universals/slip joint for wear upbox / transverter drive shaft universals/slip joint for wear 		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	all drive shafts for clearance with hydraulic hoses and cables – through		
	the full steering cycle lock to lock		
	all driveline fasteners, check they are all tight by using appropriate tools		
Drive Train	inspect		
Lubrication	transmission oil level with engine idling		
	all four wheel ends/planetary oil levels		
	front and rear differential centre oil levels		
	upbox oil level for ail leads offer took driving.		
	for oil leaks after test drivinghub seals for leaks		
	hub seals for leaks clean		
	 transverter suction screen - record contents if foreign/excessive 		
Wheels and	inspect		DSF ODSF
Tyres	 for loose and missing wheel nuts 		DSR ODSR
	 tyres for damage and record condition and % of tread remaining > 		
	 tyre pressures with gauge (if pneumatic or air/water filled) > 		Note! Always refer to tyre manufacturers for
	 tyre ID labels are in place (e.g. foam filled/solid/ water filled) 		specific tyres pressures. Always follow site requirements for tyre inspections. Specs
	for compliance labels if pneumatic		below are nominal ranges only
	 wheel rim and lock ring for damage/ missing parts 		
	tension		Air filled - Front 7 - 8.0 Bar / 100 -116 psi
Hydraulic	all wheel nuts 343Nm (253ftlb) I increase		Air filled - Rear 5 - 6.0 Bar / 70 -87 psi
General	inspect condition of all cylinders		
General	 condition of all cylinders crowd cylinder (CT08/CT10LP only) - inspect for signs that the rod clevis 		
	has moved - look for gap between rod shoulder and clevis.		
	 crowd cylinder (CT08/CT10LP only) - Inspect all the clevis clamp bolts 		
	are in place and secure with no visible signs of movement.		
	for oil leaks		
	 visually check accessible hydraulic hoses, fittings and components 		
	functionality of all hydraulics		
	discolouration or aeration of the oil		
Hydraulic	replace		
Lubrication	steer and brake pressure filters		
	hydraulic pressure and return filters		
	inspect		
	oil level at front swing open tank sight glass with engine stopped		
	oil level at rear main tank sight glass with engine running -		
	hydraulic tank breather condition and security		
	air operated oil fill pump for operation		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
Braking	inspect		
System	all accessible brake hoses.		
,	 brake functions using either the NSW MDG39 or QLD Brake Test Form > 		Refer site compliance section below
Frame	 all towing, lifting, tie down points and safety chains integrity of crowd cylinder clevises, bolts and bosses all covers, guards, latches and hinges for operation, damage and wear master hitch lock cylinder operation. Check eject/retract direction is correct ROPS/FOPS canopy for security, damage and compliance plate 		CT08 /10 Common Torque Specifications Hitch / QDS cap bolt 1480Nm (1092ftlb) Steer cylinder cap bolt 366Nm (270ftlb) Articulation cap bolt 633Nm (467ftlb) Canopy M22 499Nm (368ftlb) Canopy M30 1253Nm (924ftlb)
	 implement /attachment profile with template or against approved GA drawings. master hitch cradle profile with template or against approved GA drawings. security of oscillation/bolster mount bolts 		 CT08 Specific Torque Specifications Crowd cylinder cap bolt 1480Nm (1092ftlb)
	 inspect all split caps trunnion fasteners on the articulation, boom, cylinders, master hitch and steering bucket tongue fasteners visually for cracks, the vehicles accessible critical stress points 		CT10 Specific Torque Specifications Lift cylinder cap bolt 633Nm (467ftlb) Crowd cylinder cap bolt 633Nm (467ftlb) Boom Pivot cap bolt 1480Nm (1092ftlb) Z Bar Pivot cap bolt 1562Nm (1152ftlb) Dog bones cap bolt 1480Nm (1092ftlb)
	check		Item Wear Result (mm)
	correct operation and record wear in -		
	articulation points		
	lift arm		
	• bucket pins		
	steering pins		
	bolster (axle oscillation points)		
	tilt/crowd cylinder		
	lift cylinders regets a bitch outlineder(s)		
Vahiala	master hitch cylinder(s)		
Vehicle Safety Interlocks	 check door interlock valve is operational - park brake applies when door opened 		
	 neutral start valve is operational - vehicle will not start in FWD or REV door alarm latch function - when Park Brake is released, partly open door latch for audible horn response 		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	hydraulic door interlock valve function - park brake will not release		
0 1 0 1	when hydraulic door is opened		
Cab Section	inspect		Co cloud Tonor
	gauges are all operational		Coolant Temp
	all gauge pressures and temps at operating temperature – record		Transmission Temp
	results >		Transmission romp
	seat condition and seat suspension for operation		Hydraulic Temp
	seat base, swivel and mountings for security/integrity		
	all upholstery in cabin		
	horn operation via button on dash		Don't A a sure Discours
	brake gauge is dropping rapidly to zero when service and/or park		Brake Accum Pressure
	brake is applied		Brake Release Pressure
	emergency brake operation function by applying park brake while		Brake Keledse Fressere
	moving slowly		Transmission Pressure
	service brake operation against full engine power in 2 nd gear service brake operation against full engine power in 2 nd gear service brake operation against full engine power in 2 nd gear		
	operation of all hydraulic functions		Eng. Oil Pressure
	door handle operation pingle point provention lever on top of the door.		4: D
	 pinch point prevention lever on top of the door master hitch removal function isolates until door mounted twist knob is 		Air Pressure
	operated		Backpressure
	 for operational interference around all control levers, brake and 		Backprossoro
	accelerator pedals		
	steering operations – wheel and stick steer		
	steering operations – wheel and stick steer steering column bearing condition, operation and longitudinal		
	movement		
	 condition and security of rubber boot on stick steering lever 		
	 condition and security of the boot covering the joystick. If the boot is in 		
	a good condition and is cable tied securely in position no further action		
	is required. If there are any tears in the boot, use contact cleaner to		
	remove all contamination from the body. Inspect plungers for damage		
	& lubricate (valve/o ring grease only). Inspect actuation disk for		
	secureness and match marking to the lock nut. Check gap between		
	plungers and actuation disk is greater than 0.2mm. Replace rubber		
	boot & secure with cable tie.		
Vehicle	inspect		These inspections do not negate regional
Flameproof	operation of all lights (including directional lighting if applicable)		and site statutory electrical inspection
Electrical	check camera display and directional switching is operational (if		regimes.
Systems	applicable)		Electrical Statutory Inspections must be
•	Methane system for damage		performed by trained and authorised personnel.
	Fifth light functionality if fitted		personner.
	check		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 cabling properly secured, well routed and clear from drive shafts and pinch points installation and mounting areas for potential hazards alternators mountings and surrounding area for excessive debris. Clean as required > alternator bearings, mounts, drive covers and drive couplings for wear, noise or damage 		Electrical Flameproof enclosures are recommended to be re-certified every 4 years as a minimum. Code D electrical integrity inspections and testing must be carried out by a quality assured, certified and registered company. Use your local COALTRAM® Agent for this process.
			Refer separate statutory electrical inspection sheet. Note! Do not hose water directly on alternator when at operating temperatures
Manual	grease		allemator when at operating temperatures
Greasing	all points on vehicle, check all are receiving grease		
	inspect		
	 grease lines for damage/leaks all points are receiving grease		
Autolube	all points are receiving grease inspect		
System (If	 operation of autolube greaser grease lines for leaks 		
Applicable)	replace		
	 grease cartridges 		
	check		
	visual evidence of grease at all joints		
	 grease all lines manually via individual purge points 		
Fire System –	check		
Manual	fire extinguisher indicator gauge(s) are in the green zone		
	 bottle(s) condition 		
	 condition of fire extinguisher brackets/clamps 		
	 tags are fitted and in date on all fire extinguishers 		
Fire	check		
Suppression	fire suppression system indicator gauge is in the green zone and little fire system indicator gauge is in the green zone.		
(If Applicable)	 condition/integrity of fire suppression bottle, lines and nozzles relevant statutory inspections have been completed (system to be 		
	tagged/dated)		
Site Compliance	 check brake test has been carried out as per site regulations 		>Refer to the vehicles approval documents for base line gas testing





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 gas test has been carried out as per site regulations 		>Test with engine at operating temperature
	 exhaust gas emissions are within baseline testing specification limits > 		

LUBRICANTS		
COMPONENT	FLUID TYPE	CAPACITY
ENGINE	SAE 15W40	30L
RADIATOR/ENGINE	PRE-MIX 100% SAE COOLANT	68L - Fill Very Slowly, Bleed Air from Exhaust Cooling Lines
UP BOX	90W (Alternatively 80W/90 or 85W/90 or similar)	2L – Fill Very Slowly
TRANSVERTER/TRANSMISSION	10W/30	25L – Check with Engine Running
DIFFERENTIALS	85W140 (Alternatively HLS 90W)	18L Each
PLANETARIES	85W140 (Alternatively HLS 90W)	3.7L Each
HYDRAULIC TANK	10W/30 – WET BRAKE COMPLIANT (Alternatively Tellus 68 or equivalent)	160L – Check Main Rear Tank Level with Engine Running, And Front Tank With Engine Stopped

FILTERS AND SERVICE ITEM PART NUMBERS				MAINTENANCE INTERVAL REQUIREMENTS						
DESCRIPTION	PART NUMBER	QTY	QTY CODE C1							
SERVICE KIT PART NUMBER						5520001778				
FILTERS										





Air Filter (Outer)	5520000240	1		•		
Engine Oil Filter	5520000494	1		•		
Turbo Saviour Filter	5520000177	1		•		
Fuel Filter – Primary Water Separator	5520000648	1		•		
Fuel Filter – Secondary	5520001765	1		•		
Transverter Filter	5520001237	1		•		
Transverter Filter Housing O Ring	9236201751	1		•		
Air Filter (Inner)	5520000241	1		•		
Hydraulic Steer Filter – Pressure	5520010556	1		•		
Hydraulic Brake Filter – Pressure	5520000278	1		•		
Hydraulic Return Filter	5541300800	1		•		
Hydraulic Steer Filter O Ring	5520002217	1		•		
Hydraulic Brake Filter O Ring	5520002218	1		•		
Hydraulic Return Filter O Ring	5520002219	1		•		
Hydraulic Return Filter O Ring	5520009059	1		•		
Sensor Manifold Air Filter Element	5520010490	1		•		
PARTS						
Fan Belts CT08 / CT10	5520000350	2		•		
Water Pump Belt	5520000384	1		•		
Water Pump Belt (Relocated Tensioner)	5520011040	1#		#		
Flametrap Gasket	5520000093	2		•		
Transverter Screen Gasket	5533358300	1		•		
Water Pump Tensioner Pulley Bearing	5520000037	2		•		
Water Pump Tensioner Pulley Bearing Circlip	5520001802	1		•		

[#]Item not included in standard kit.

Additional Parts not included in service kit

DESCRIPTION	PART NUMBER	QTY
Autolube grease cartridge 450gm	5520001696	2





COALTRAM® CT08/CT10/CT10LP - CODE C2 MAINTENANCE - 6 Monthly / 1000 Hour

For detailed maintenance instructions refer to the Service Manual and relevant Workplace Instructions.

Regularly check compliance and upgrades relating to Industry Bulletins and Alerts.

VEHICLE PLANT NUMBER		HIRER /OWNER		
VEHICLE SERIAL NUMBER		DATE		
SITE		METHANE HOURS		
PROJECT/JOB NUMBER		MONEX HOURS		
IMMEDIATE REPAIRS COMPLETE	ED:			
FUTURE REPAIRS REQUIRED:				
TECHNICIANS				
PRINT NAME(S)	SIGN		D	ATE
PRINT NAME(S)	SIGN		D	ATE
SUPERVISORS			1	
PRINT NAME(S)	SIGN		D	ATE





COALTRAM MAINTENANCE SAFETY INFORMATION

- Ensure that all safety information is read and understood before maintenance or repair task is performed
- The person who is undertaking the repair or maintenance task must be qualified and competent to complete the task being undertaken
- PPE. Appropriate PPE must be worn including Hi Visibility Clothing, Safety glasses, Protective Footwear, Hand Protection (as required) Hearing Protection (as required), hard hat (as required), Dust Masks (as required).
- Isolation locks, Danger Tags and Out of Service tags MUST be used in accordance with site requirements and machine specific isolation procedure.
- All lifting gear must have current inspection tag, be suitably rated for item being lifted, and be in good condition.
- Lifts requiring mechanical aids must only be conducted by trained and competent personnel.
- When lifting objects with mechanical aid, keep clear of all potential crush or pinch points.
- Keep clear of suspended loads. Use Safety line to control load when required.
- Manual Handling. Do not lift or move objects by hand that are too heavy to do so. When manual handling objects use correct manual handling techniques.
- Pinch Points. Keep all body parts clear of pinch points. Ensure hands and feet are clear when lifting and lowering objects
- Machine support stands. Ensure machine support stands are of suitable capacity and in serviceable condition.
- Slips, trips, falls. Ensure work area is clear of objects that could cause a slip, trip, Fall hazard.
- 11. Warning labels on machine must be observed



12. Prohibition labels on machine must be observed



 Information labels on machine must be observed



14. Service points on machine must be observed



- Climbing on top of machine. Always maintain 3 point contact when climbing on top of machine.
- Hot surfaces. Be aware of hot surfaces when machine has been running.
- Hot fluids. Be aware hot pressurised fluids. This includes engine coolant, hydraulic oil, transmission oil, diesel fuel.
- Chemical injuries: ensure that Material Safety Data Sheets are available and understood for all fluids used on machine.
- Stored energy. Ensure all stored energy has been depleted and raised cylinders supported before conducting repairs or maintenance.
- Accumulator pre-charge pressure. When all stored energy has been depleted the Nitrogen Pressure in the Brake Accumulator is 83 Bar (1,200 psi). DO NOT attempt to release pressure without correct equipment. DO NOT disassemble accumulator without releasing Nitrogen pressure to zero.
- Falling objects. Do not work under unsupported roof or in area where there is risk of falling objects.
- 22. Live Testing: Live testing must only be done after a task specific risk assessment (take 5 or similar) and in accordance with site requirements. The person operating the machine during live testing must be competent to operate the machine.
- Crush points: Ensure that Articulation lock is fitted when conducting maintenance or repairs in crush zones.

- Working under boom: Do not enter under boom unless boom rated, designed for purpose supports have been fitted, boom has been lowered onto supports and machine is isolated.
- 25. Hydraulic injection: Ensure that all stored hydraulic energy has been depleted before disconnecting hydraulic hose or fitting. Do not use your hand to find a hydraulic leak. Use a piece of Cardboard or similar to check for leaks. In the event of a suspected hydraulic injection refer to site specific procedure for fluid injection.
- 26. Compressed air: Ensure air receiver has been isolated before conducting repairs on air system. If working on air receiver the air receiver must be depressurised before commencing work. NOTE: The accumulator on the transmission declutches valve will maintain a small volume of compressed air. Follow instructions on how to remove air accumulator pressure (behind gauge panel) to discharge.
- Current information: Ensure current information is available prior to commencing maintenance or repair task.
- Guards: Ensure all guards and covers removed during maintenance or repairs are replaced prior to starting machine.
- 29. Ventilation Ensure adequate ventilation when testing machine
- Do not conduct electric welding on machine unless the battery has been removed and Alternator disconnected by competent and authorised person.
- 31. Stay clear of rotating parts
- 32. Always use tools that are in good serviceable condition
- Take care to not damage wiring, hydraulic or air lines during repairs and maintenance.
- Ensure all electrical cables are placed in positions away from any possible mechanical damage and away from fuel lines.
- Gas Struts. (used on covers) contain compressed gas even when fully extended. Before removing, check for damage. Damage may cause an uncontrolled release of energy or exploding parts when removing strut.

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Document ID: DD-024 Code C2 – Coaltram CT08/10/10LP Section: Coaltram Version:16-0824





RECOMMENDED COALTRAM MAINTENANCE AND COMPLIANCE SCHEDULE

REF. DOCS. AS3584.3, MDG1

MAINTENANCE EXAMINATION CODE	CALENDER BASED REGIME	ENGINE HOURS REGIME			
CODE A EXAMINATION - Maintenance	DAILY	10			
CODE B EXAMINATION - Maintenance	WEEKLY	50			
CODE C EXAMINATION - Maintenance	MONTHLY	250			
CODE C1 EXAMINATION - Maintenance	3 MONTHLY	500			
CODE C2 EXAMINATION - Maintenance	6 MONTHLY	1000			
CODE D EXAMINATION – Maintenance	CODE D EXAMINATION – Maintenance YEARLY				
CODE D1 EXAMINATION - Maintenance	DDE D1 EXAMINATION - Maintenance 2 YEARLY				
CODE D2 EXAMINATION - Maintenance	NOT YEARLY BASED	8000			
COMPLIANCE	OVERHAUL - Mechanical	2 YEARLY / or 2000 engine hours			
	CAL COMPLIANCE OVERHAUL	- whichever is achieved first			
Mechanical Compliance Overhauls are recomm	nended to be completed by an accredited COALTRAM Agent	OR as approved by Site Manager using site historical evidence and risk assessments in conjunction with the			
and are to be aligned with Mainte	COALTRAM Agent				
COMPLIANCE	4 YEARLY				
CODE D ELECTRIC	CODE D ELECTRICAL COMPLIANCE OVERHAUL				
Electrical Compliance Overhauls are recomme	nded to be completed by an accredited COALTRAM Agent	evidence and risk assessments in conjunction with the COALTRAM Agent			



COALTRAM® ENGINE SYSTEMS

Vehicle Hours c	 engine hours and record on page 1. Record both MONEx screen and 		i		S / ACTIONS
	engine hours and record on page 1. Record both MONEx screen and Methane display hours	* This symbol beside an instructhere may be other activities to conjunction with this task in a of this document. Eg. When the planetary whe drained, you need to measure wear before refilling with the planetary was a second with the planetary with the planetary was a second with the planetary with the p			es to complete in a different area ent. wheel ends are asure the brake
S C iii	covers and guards as required vash vehicle after fitting wash down cover to MONEx display screen and avoid direct high pressure water on electrical devices. Wash complete engine system and all engine bay areas of excessive coal, dust, oil, mud, and debris. accumulated materials from the engine bay in a forward direction away from the radiator check unusual knocks and noises oil leaks engine mounts and bolts. starter motor is secure sump security / integrity and corrosion water ingress into engine flywheel housing – remove bottom plug and record contents cample oil from engine x 1 for analysis clean engine breather hose internal and external condition eplace engine oil engine oil engine oil filter turbo saviour oil filter e-check after running engine oil level		Record resu temp – Oil Pressure	ount bolts. 189N Its with engine c (Min 20psi) – Idle (80± 20psi) - Ma: Spec 830-880 2220 +/- 50	at operating





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 leaks oil pressure> Record result at operating temperature idle, flight rpm > Record result 		
Engine Air Intake	replace • air cleaner inner and outer filter elements		
	 inspect air cleaner restriction indicators x 2 are serviceable and in the correct zone system for security and leaks hosing/pipe integrity air charge pipe doesn't contact/rub on other components air cleaner housing integrity test operation of choker/strangler valve as per workplace instructions > 		Refer to Standard Work Procedures or the Service Manual for detailed Choker test instructions. Incorrect choker testing can cause engine damage
GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
Cooling System	radiator thoroughly from the rear side and the front engine bay side with a high flow hose and detergent. Note! High pressure water at close range diagonally across radiator may fold over fins and restrict air flow		
	 water pump FRAS V-belt - ensure correct tension after test running for a short period of time engine cooling fan FRAS V-belts - ensure correct tension after test running for a short period of time 		Note – All V-Belts and fan blades must be FRAS rated to comply with U/G coal
	 water pump belt tensioner pulley bearings and seals inspect condition and security of radiator hoses for leaks fan hub and tensioner bearings for excessive movement 		regulations
	 radiator mounting bolts fan blade condition/integrity fan position in shroud (ensure centralised and correct protrusion 18mm to 22mm of blade protruding past shroud towards engine 		Recommended to use pre-mixed Caterpillar ELC (Extra Long life Coolant) or equivalent.
	 for blockages in cores on both sides of the radiator radiator and pulley guards are in place and secure coolant is correct mix - coloured pre-mix > check coolant is in sight glass on header tank 		
	 radiator cap condition and ensure 13psi rating grease 		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	fan and idler pulley		
Fuel System	sample		
	fuel from tank x 1 for analysis		
	 drain sediments and potential water from fuel tank drain plug – record any 		
	contamination or water in the fuel tank		
	replace		
	all fuel filters		
	inspect		
	fuel hoses and fittings		
	fuel lines for contact on any hot components		
	fuel tank cap and strainer condition		
	fuel gauge level/operation/condition		
Pneumatic	• for leaks drain		
System	water/contaminants from air tank		
39316111	water/contaminants from primary in-line water trap bowl in the		
	articulation (no oil to be added)		
	clean		
	air charge Y strainer		
	filter located inside the primary in-line water trap bowl in the articulation		
	(no oil to be added)		
	replace		
	sensor manifold air filter located inside the secondary in-line water trap		
	bowl behind the MONEx display dash panel (no oil to be added)		
	 inspect air compressor delivery hose condition – ensure it's a braided steel PTFE 		
	type		
	air tank relief valve operation (pull ring to ensure releases air and)		
	reseals)		
	leaks on system and repair/report		
	compressor cut out pressure 115-120psi (800–850 kPa)		
	condition of all hoses and fittings		
	scrubber make up tank pressure – 5-7psi (35-50kPa)		
	safety circuit reduced pressure – 90-100psi (620– 690 kPa) – located babind the AAONE's display along a graph		
	 behind the MONEx display dash panel air compressor braided steel PTFE delivery line and fittings internally for 		
	all compressor braided steel PTFE delivery line and illings internally for any accumulated carbon – replace parts if carbon build up present		
Electronic	check		These mechanical inspections do no
Engine			negate recommended 4 yearly









GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	MONEx Fault Log history – manual screen search and record problematic events and/or historic concerns of interest AND/OR electronic upload and capture of data using the MONEx LRS (Log Retrieval System) > engine configuration files via ET Tool to capture the engines current electronic signature		Earlier MONEx versions do not have the ability to use the LRS electronic upload
Mechanical Flameproof System	 scrubber tank by fully draining at the lower socket to remove built up exhaust residue. If a ball valve is used in this port, a plug must accompany it to comply with safety regulations. scrubber tank internally by hosing out with drain plug removed (use appropriate detergent as required) y-piece strainer in scrubber fill line inspect. intake flametrap condition - Remove MONEx sensors on intake nose cone and through access holes visually inspect flametrap element. May require use of a light to view clearly. If surface shows signs of contamination, remove and clean air inlet flametrap, fitting new gaskets on assembly. Note in comments column if item required cleaning scrubber vibration mounts for wear or damage and ensure area is free from debris 		Code D mechanical integrity inspections and testing must be carried out by a quality assured, certified and registered company. Use your local COALTRAM ®Agent for this purpose Note! All parts, gaskets and fasteners relating the Code D mechanical integrity inspection must be genuine COALTRAM ®parts to maintain approval compliance
	 compliance labels, present, secure and in date all items for integrity, security and damage fasteners on the mechanical flameproof joints turbo mount for looseness or evidence of broken studs inlet system for leaks by spraying joints with soapy water whilst under load at high idle> exhaust system for leaks by spraying joints with soapy water whilst under load at high idle> check for excessive blue exhaust smoke and irritating fumes at varying load and rev ranges. add water conditioner to scrubber make up tank (if applicable to site). Note; do not over dose the scrubber water with conditioner scrubber static water level when stopped using the scrubber dipstick 		To check intake/exhaust system for leaks operate engine/vehicle when at operating temperature so max turbo boost is achieved. This can be achieved at converter / torque stall. Spray intake joints with soapy water and check for bubbles while under this load. Note - bubbles or exhaust carbon near gaskets/joints indicate bypass/leaks on the exhaust system, bubbles only will appear on air intake leaks.





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
Particulate Filter System (Option 1)	 inspect condition, integrity and security of housing /components for exhaust leaks housing door/lid seal; replace if not sealing 		Note! Replace filters as per site specific procedure – only approved filter elements to be fitted – Microfresh (5520000086) or Cosway (5520010707)
Ceramic Wall-Flow Filter System (CWFF) (Option 2	Inspect Safety Isolation Valve x 2 Differential & Back Pressure Sensors, Hosing & Fittings Inlet & Outlet Temperature Sensors Diesel Oxidation Catalyst element - remove and inspect for damage > Filter element - remove and inspect for damage > Heat Shield Rubber, Turbo Inlet Flange, CWFF Heat Shield Rubber, Exhaust Manifold, CWFF Ex Gland, adapters, spigots, conduits, etc (Monitor and Shutdown System, CWFF) Electrical Cables HA110 (inc. push button, window, etc) (Visual) Junction box (Visual) I.S. interfaces inside HA110 (Visual) HA116-H Antenna Check Check filter element differential pressure using hi-idle test procedure Remove + Clean Flame Trap - Pressure sensor x 2 Replace Internal sealing gaskets (5520011006)		Filter removal requires opening flameproof joints. Only to be conducted by competent, authorised persons. Ensure new gaskets are available prior to reassembly. Ref. SWP CT 3.53 Hi-Idle Test Procedure (REF. SWP CT 1.35) Pass Differential Pressure = < 15 kPa @ High Idle If > 15 kPa then Filter Regen Required Filter removal requires opening flameproof joints. Only to be conducted by competent, authorised persons. Ensure new gaskets are available prior to reassembly. Ref. SWP CT 3.53 Flame traps must be cleaned as per OEM recommendations

COALTRAM® VEHICLE SYSTEMS

GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
General	wash entire vehicle thoroughly. Fit wash down cover to MONEx display screen and avoid direct high pressure water an electrical devices.		
	and avoid direct high pressure water on electrical devices inspect steering articulation lock boom safety support locks		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	safety triangles		
	wheel chocks		
Drive Train	clean		
General	 all component breathers (transmission, differentials, upbox) 		
	inspect		
	 integrity of breather hoses/lines 		
	security of upbox mounting bolts		Front axle bolts - 633Nm (467ftlb)
	security of transverter mounts and bolts		Rear axle bolts - 366Nm (270ftlb)
	security of axle mounting bolts and potential movement between		If feeler gauge passes between face
	housings and frame. Check if 0.2mm feeler gauge can pass between		remove bolts, lower axle clean mating face
	mating faces >		and install new bolts
	differential centre fasteners		
	condition and adjustment of transmission F.N.R selector and gear lever		
	linkages and cables		
Drive Train	inspect		
Shafts	front axle driveshaft universals/slip joint for wear		
	 rear axle driveshaft universals/slip joint for wear 		
	driveline centre bearings x 2		
	transverter to centre bearing universals/slip joint for wear		
	 upbox / transverter drive shaft universals/slip joint for wear 		
	all drive shafts for clearance with hydraulic hoses and cables – through		
	the full steering cycle lock to lock		
	 all driveline fasteners, check they are all tight by using appropriate tools 		
Drive Train	sample		
Lubrication	oil from transverter x 1 for analysis		
	 oil from differentials x 2 for analysis 		
	 oil from planetaries x 4 for analysis 		
	oil from upbox x 1 for analysis		
	replace		
	transverter oil		
	transverter oil filter		
	both differential oils		
	all four planetary oils		
	upbox oil		
	inspect		
	oil levels after allowing vehicle to stand for 5 minutes after filling		
	transmission oil level with engine idling		
	all four wheel ends/planetary oil levels		
	front and rear differential centre oil levels		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 upbox oil level for oil leaks after test driving hub seals for leaks clean transverter suction screen - record contents if foreign/excessive 		
Wheels and Tyres	 inspect for loose and missing wheel nuts tyres for damage and record condition and % of tread remaining > tyre pressures with gauge (if pneumatic or air/water filled) > tyre ID labels are in place (e.g. foam filled/solid/ water filled) for compliance labels if pneumatic wheel rim and lock ring for damage/ missing parts tension all wheel nuts 343Nm (253ftlb) 		DSF ODSF DSR ODSR Note! Always refer to tyre manufacturers for specific tyres pressures. Always follow site requirements for tyre inspections. Specs below are general ranges only Air filled - Front 8.0 Bar / 116 psi Air filled - Rear 6.0 Bar / 87 psi
Hydraulic General	 inspect condition of all cylinders crowd cylinder (CT08/CT10LP only) - inspect for signs that the rod clevis has moved - look for gap between rod shoulder and clevis. crowd cylinder (CT08/CT10LP only) - Inspect all the clevis clamp bolts are in place and secure with no visible signs of movement. for oil leaks visually check accessible hydraulic hoses, fittings and components functionality of all hydraulics discolouration or aeration of the oil CT10 only - crowd cylinder gland retaining bolts. If any are found to be loose, replace all. > 		Old style crowd cylinder with M12 socket head cap screw – check tension to 143 Nm New style crowd cylinder with M16 socket head cap screw – check tension to 330 Nm
Hydraulic Lubrication	replace steer and brake pressure filters hydraulic pressure and return filters inspect return filter restriction indicator—if extended and protruding, investigate reason oil level at front swing open tank sight glass with engine stopped oil level at rear main tank sight glass with engine running - hydraulic tank breather condition and security air operated oil fill pump for operation		
Braking System	 inspect all accessible brake hoses. brake functions using either the NSW MDG39 or QLD Brake Test Form > multi-disc wet brake wear and record results- use the genuine service tool only > 		Refer site compliance section below Brake wear results (PASS/FAIL) –





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	operation of primary and secondary brake dump valves by isolating the pilot pressure - brakes should not release with this pilot isolated.		DSF ODSF DSR ODSR
Frame	tension		Torque Specifications
Vehicle Safety Interlocks	 check door interlock valve is operational - park brake applies when door opened neutral start valve is operational - vehicle will not start in FWD or REV door alarm latch function - when Park Brake is released, partly open door latch for audible horn response hydraulic door interlock valve function - park brake will not release when hydraulic door is opened 		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
Cab Section	inspect gauges are all operational all gauge pressures and temps at operating temperature – record results > seat condition and seat suspension for operation seat base, swivel and mountings for security/integrity all upholstery in cabin horn operation via button on dash brake gauge is dropping rapidly to zero when service and/or park brake is applied emergency brake operation function by applying park brake while moving slowly service brake operation against full engine power in 2nd gear operation of all hydraulic functions door handle operation pinch point prevention on door master hitch removal function isolates until door mounted twist knob is operated for operational interference around all control levers, brake and accelerator pedals steering operations – wheel and stick steer steering is isolated when park brake is applied steering column bearing condition, operation and longitudinal movement condition and security of rubber boot on stick steering lever lift rubber boot on main hydraulic lever, use contact cleaner to remove all contamination from the body. Inspect plungers for damage & lubricate (valve/o ring grease only). Inspect plungers for damage & lubricate (valve/o ring grease only). Inspect actuation disk of secureness and match marking to the lock nut. Check gap between plungers and actuation disk is greater than 0.2mm. Re-secure rubber		Coolant Temp Transmission Temp Hydraulic Temp Brake Accum Pressure Brake Release Pressure Transmission Pressure Eng. Oil Pressure Air Pressure Backpressure
Vehicle Flameproof Electrical Systems	 inspect operation of all lights (including directional lighting if applicable) positioning of light directions/ projections clean light lenses and any other enclosure windows check camera display and directional switching is operational (if applicable) Methane system for damage Fifth light functionality (if fitted) 		These inspections do not negate regional and site statutory electrical inspection regimes. Electrical Statutory Inspections must be performed by trained and authorised personnel. Electrical Flameproof enclosures are





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 condition/integrity of following items hosing and cabling installation and mounting areas for potential hazards fastener security alternators mountings and surrounding area for excessive debris. Clean as required > alternator bearings, mounts, drive covers and drive couplings for wear, noise or damage 		Code D electrical integrity inspections and testing must be carried out by a quality assured, certified and registered company. Use your local COALTRAM® Agent for this process. Refer separate statutory electrical inspection sheet.
			Note! Do not hose water directly on alternator when at operating temperatures
Manual	grease		
Greasing	all points on vehicle, check all are receiving grease		
	inspect		
	 grease lines for damage/leaks all points are receiving grease		
Autolube	inspect		
System	operation of autolube greaser		
(If	grease lines for leaks		
Applicable)	replace		
	grease cartridges		
	check		
	visual evidence of grease at all joints		
	grease		
Fire System –	all lines manually via individual purge points check		
Manual	fire extinguisher indicator gauge(s) are in the green zone		
	bottle(s) condition		
	 condition of fire extinguisher brackets/clamps 		
	tags are fitted and in date on all fire extinguishers		
Fire	check		
Suppression (If	 fire suppression system indicator gauge is in the green zone condition/integrity of fire suppression bottle, lines and nozzles 		
(II Applicable)	 condition/integrity of fire suppression bottle, lines and nozzles relevant statutory inspections have been completed (system to be 		
, (pplicable)	tagged/dated)		
Site	check		
Compliance	brake test has been carried out as per site regulations		>Refer to the vehicles approval documents
	gas test has been carried out as per site regulations		for base line gas testing
	 exhaust gas emissions are within baseline testing specification limits > 		>Test with engine at operating temperature





LUBRICANTS		
COMPONENT	FLUID TYPE	CAPACITY
ENGINE	SAE 15W40	30L
RADIATOR/ENGINE	PRE-MIX 100% SAE COOLANT	68L - FILL VERY SLOWLY, BLEED AIR FROM EXHAUST COOLING LINES
UP BOX	90W	2L – FILL VERY SLOWLY
TRANSVERTER/TRANSMISSION	10W/30	25L – CHECK WITH ENGINE RUNNING
DIFFERENTIALS	85W140	18L EACH
PLANETARIES	85W140	3.7L EACH
HYDRAULIC TANK	10W/30 – WET BRAKE COMPLIANT	160L – CHECK MAIN REAR TANK LEVEL WITH ENGINE RUNNING, AND FRONT TANK WITH ENGINE STOPPED





FILTERS AND SERVICE ITEM PART NUMBERS			MAINTENAN	CE INTERVAL REQU	IIREMENTS	
DESCRIPTION	PART NUMBER	QTY			CODE C2	
SERVICE KIT PART NUMBER					5520001779	
FILTERS					6 Monthly / 1000Hr	
Air Filter (Outer)	5520000240	1			•	
Engine Oil Filter	5520000494	1			•	
Turbo Saviour Filter	5520000177	1			•	
Fuel Filter – Primary Water Separator	5520000648	1			•	
Fuel Filter – Secondary	5520001765	1			•	
Transverter Filter	5520001237	1			•	
Transverter Filter Housing O Ring	9236201751	1			•	
Air Filter (Inner)	5520000241	1			•	
Hydraulic Steer Filter – Pressure	5520010556	1			•	
Hydraulic Brake Filter – Pressure	5520000278	1			•	
Hydraulic Return Filter	5541300800	1			•	
Hydraulic Steer Filter O Ring	5520002217	1			•	
Hydraulic Brake Filter O Ring	5520002218	1			•	
Hydraulic Return Filter O Ring	5520002219	1			•	
Hydraulic Return Filter O Ring	5520009059	1			•	
Sensor Manifold Air Filter Element	5520010490	1			•	
PARTS						
SOS Sample Bottle	5520001865	11			•	
Fan Belts 168kw	5520000350	2			•	
Water Pump Belt	5520000384	1			•	
Flametrap Gasket	5520000093	2			•	
Transverter Screen Gasket	5533358300	1			•	
Diff Breather	5534307200	2			•	
Upbox Breather	5534307200	1			•	
Transverter Breather	5541501500	1			•	
Hydraulic Tank Breather	5537168400	1			•	
Brake Wear Indicator Tool	5520000387	1			•	
Water Pump Tensioner Pulley Bearing	5520000037	2			•	
Water Pump Tensioner Pulley Seal	5520009346	2			•	



Additional Parts not included in service kit

DESCRIPTION	PART NUMBER	QTY
Autolube grease cartridge 450gm	5520001696	2

Ceramic Wall-Flow Filter System (CWFF) (if fitted)

DESCRIPTION	PART NUMBER	QTY
Water Pump Belt (Relocated Tensioner)	5520011040	1
Gasket – CWF inner shell to downpipe	5520011004	1
Gasket – CWF element internal	5520011006	2





COALTRAM® CT08/CT10/CT10LP - CODE D MAINTENANCE -Yearly / 2000 Hour

For detailed maintenance instructions refer to the Service Manual and relevant Workplace Instructions.

Regularly check compliance and upgrades relating to Industry Bulletins and Alerts.

VEHICLE PLANT NUMBER			HIRER /OWNER			
VEHICLE SERIAL NUMBER			DATE			
SITE			METHANE HOURS			
PROJECT/JOB NUMBER			MONEx HOURS			
IMMEDIATE REPAIRS COMPL	ETED:					
FUTURE REPAIRS REQUIRED): 					
TECHNICAL BULLETINS AND SA	FETY ALERTS			It's the Owner's res	ponsibility to	ensure compliance. No and initial
It's recommended that a complete TBGAS (Technical Bulletin and General Alerts Sheet) Audit is conducted at Code D level and above to ensure the vehicle and Diesel Engine System complies with OEM and industry requirements.		it is conducted at Code ndustry requirements.	Yes	2 2.1010 1 001	No No	
TECHNICIANS						
PRINT NAME(S)	S	SIGN			DATE	
PRINT NAME(S)	S	SIGN			DATE	
SUPERVISORS		<u>'</u>				
PRINT NAME(S)	S	SIGN			DATE	





COALTRAM MAINTENANCE SAFETY INFORMATION

- Ensure that all safety information is read and understood before maintenance or repair task is performed
- The person who is undertaking the repair or maintenance task must be gualified and competent to complete the task being undertaken
- PPE. Appropriate PPE must be worn including Hi Visibility Clothing, Safety glasses, Protective Footwear, Hand Protection (as required) Hearing Protection (as required), hard hat (as required), Dust Masks (as required).
- Isolation locks, Danger Tags and Out of Service tags MUST be used in accordance with site requirements and machine specific isolation procedure.
- All lifting gear must have current inspection tag, be suitably rated for item being lifted, and be in good condition.
- Lifts requiring mechanical aids must only be conducted by trained and competent personnel.
- When lifting objects with mechanical aid, keep clear of all potential crush or pinch points.
- Keep clear of suspended loads. Use Safety line to control load when required.
- Manual Handling. Do not lift or move objects by hand that are too heavy to do so. When manual handling objects use correct manual handling techniques.
- Pinch Points. Keep all body parts clear of pinch points. Ensure hands and feet are clear when lifting and lowering objects
- Machine support stands. Ensure machine support stands are of suitable capacity and in serviceable condition.
- 10. Slips, trips, falls. Ensure work area is clear of objects that could cause a slip, trip, Fall hazard.
- 11. Warning labels on machine must be observed



12. Prohibition labels on machine must be observed



Information labels on machine must be



Service points on machine must be observed



- Climbing on top of machine. Always maintain 3 point contact when climbing on top of machine.
- Hot surfaces. Be aware of hot surfaces when machine has
- Hot fluids. Be aware hot pressurised fluids. This includes engine coolant, hydraulic oil, transmission oil, diesel fuel.
- Chemical injuries: ensure that Material Safety Data Sheets are available and understood for all fluids used on machine.
- Stored energy. Ensure all stored energy has been depleted and raised cylinders supported before conducting repairs or maintenance.
- Accumulator pre-charge pressure. When all stored energy has been depleted the Nitrogen Pressure in the Brake Accumulator is 83 Bar (1,200 psi). DO NOT attempt to release pressure without correct equipment. DO NOT disassemble accumulator without releasing Nitrogen pressure to zero.
- Falling objects. Do not work under unsupported roof or in area where there is risk of falling objects.
- 22. Live Testing: Live testing must only be done after a task specific risk assessment (take 5 or similar) and in accordance with site requirements. The person operating the machine during live testing must be competent to operate the machine.
- Crush points: Ensure that Articulation lock is fitted when conducting maintenance or repairs in crush zones.

- Working under boom: Do not enter under boom unless boom rated, designed for purpose supports have been fitted, boom has been lowered onto supports and machine is isolated.
- Hydraulic injection: Ensure that all stored hydraulic energy has been depleted before disconnecting hydraulic hose or fitting. Do not use your hand to find a hydraulic leak. Use a piece of Cardboard or similar to check for leaks. In the event of a suspected hydraulic injection refer to site specific procedure for fluid injection
- Compressed air: Ensure air receiver has been isolated before conducting repairs on air system. If working on air receiver the air receiver must be depressurised before commencing work. NOTE: The accumulator on the transmission declutches valve will maintain a small volume of compressed air. Follow instructions on how to remove air accumulator pressure (behind gauge panel) to discharge.
- 27. Current information: Ensure current information is available prior to commencing maintenance or repair task.
- Guards: Ensure all guards and covers removed during maintenance or repairs are replaced prior to starting machine.
- Ventilation Ensure adequate ventilation when testing machine
- Do not conduct electric welding on machine unless the battery has been removed and Alternator disconnected by competent and authorised person.
- Stay clear of rotating parts
- Always use tools that are in good serviceable condition
- Take care to not damage wiring, hydraulic or air lines during repairs and maintenance.
- Ensure all electrical cables are placed in positions away from any possible mechanical damage and away from fuel lines.
- Gas Struts. (used on covers) contain compressed gas even when fully extended. Before removing, check for damage. Damage may cause an uncontrolled release of energy or exploding parts when removing strut.

Document ID: DD-025 Code D - Coaltram CT08/10/10LP Section: Coaltram





RECOMMENDED COALTRAM MAINTENANCE AND COMPLIANCE SCHEDULE

REF. DOCS. AS3584.3, MDG1

MAINTENANCE EXAMINATION CODE CALENDER BASED REGIME		ENGINE HOURS REGIME	
CODE A EXAMINATION - Maintenance	DAILY	10	
CODE B EXAMINATION - Maintenance	WEEKLY	50	
CODE C EXAMINATION - Maintenance	MONTHLY	250	
CODE C1 EXAMINATION - Maintenance	3 MONTHLY	500	
CODE C2 EXAMINATION - Maintenance	6 MONTHLY	1000	
CODE D EXAMINATION – Maintenance	YEARLY	2000	
CODE D1 EXAMINATION - Maintenance	2 YEARLY	4000	
CODE D2 EXAMINATION - Maintenance	NOT YEARLY BASED	8000	
COMPLIANCE	OVERHAUL - Mechanical	2 YEARLY	
CODE D MECHANICAL COMPLIANCE OVERHAUL Mechanical Compliance Overhauls are recommended to be completed by an accredited COALTRAM Agent and are to be aligned with Maintenance Examinations CODE C level or greater		OR as approved by Site Manager using site historical evidence and risk assessments in conjunction with the COALTRAM Agent	
COMPLIANCE OVERHAUL - Electrical		4 YEARLY	
CODE D ELECTRIC	OR as approved by Site Manager using site historical evidence and risk assessments in conjunction with the COALTRAM Agent		

Section: Coaltram



Notes:

- If completing this service in conjunction with a code D, some tasks will be duplicated on the TDES paperwork. There is no requirement for the tasks to be repeated, though, both sets of paperwork should be completed.
- When replacing safety critical components attach tag (5520010495) to identify install date. Tag can be attached with cable tie or suitable adhesive

COALTRAM® ENGINE SYSTEMS

GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS		
Vehicle Hours c	engine hours and record on page 1. Record both MONEx screen and Methane display hours		* This symbol beside an instruction indicates there may be other activities to complete in conjunction with this task in a different area of this document. Eg. When the planetary wheel ends are drained, you need to measure the brake wear before refilling with oil*		
w c	 covers and guards as required vehicle after fitting wash down cover to MONEx display screen and avoid direct high pressure water on electrical devices. Wash complete engine system and all engine bay areas of excessive coal, dust, oil, mud, and debris accumulated materials from the engine bay in a forward direction away from the radiator check unusual knocks and noises oil leaks engine mounts and bolts. starter motor is secure sump security / integrity and corrosion water ingress into engine flywheel housing – remove bottom plug and record contents turbo charger impellor and turbine shaft bearings for excessive wear – Turbo charger has a 4000 hour recommended service life. bolts mounting engine to cradle oil from engine x 1 for analysis 		Tensions - • engine mount bolts - 189Nm (139 ft/lbs) Pressures when engine is at operating temperature – Oil Pressure (Min 20psi) – Idle Oil Pressure (80± 20psi) - Max Revs CT08/10/ 10LP with 49" diameter diameter tyres and larger tyres only Standard Spec - 13.7 ratio Converte r RPM 13.7 ratio Converte r Results		

Section: Coaltram





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COV	MENTS / RE	SULTS / ACTION	ONS
	replace		Idle	860-880	860-880	
	engine oil		Idio	000 000	000 000	
	engine oil filter		Flight	2220± 50	2220± 50	
	turbo saviour oil filter		Travas			
	engine breather		Trans stall	1980± 50	2120± 50	
	inspect					
	engine breather hose internal and external condition		Hyd			
	re-check		and Trans	1730± 50	1800± 50	
	after running engine		stall			
	oil level		31411			
	• leaks					
	oil pressure> Record result at operating temperature					
F	idle, flight and stall rpm > Record result					
Engine Air Intake	replace air cleaner inner and outer filter elements					
	inspect					
	air cleaner restriction indicators x 2 are serviceable and in the correct		5			
	zone				k Procedures tailed Choker	
	system for security and leaks				choker testing	
	 hosing/pipe integrity 			gine damag		Carr
	 air charge pipe doesn't contact/rub on other components 			0 0		
	air cleaner housing integrity					
	 test operation of choker/strangler valve as per workplace instructions > 					
Cooling	clean					
System	 radiator thoroughly from the rear side and the front engine bay side 					
	with a high flow hose and detergent. Note! High pressure water at close					
	range diagonally across radiator may fold over fins and restrict air flow					
	replace					
	water pump FRAS V-belt - ensure correct tension after test running for a					
	short period of time					
	engine cooling fan FRAS V-belts - ensure correct tension after test was in a fan and a said of time a				fan blades mu	
	running for a short period of time				with U/G coal	l
	water pump belt tensioner pulley bearings and seals		regulatio	15		
	upper and lower radiator hoses and clamps					
	exhaust manifold head bypass hose and clamps - the manifold head bypass hose and clamps - the manifold head bypass hose and clamps - the manifold head bypass hose and clamps					
	exhaust manifold /water pump bypass hose and clamps angline angline				pre-mixed Co	
	engine coolant >		FLC (Extra	a Long life Co	olant) or equi	valent





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
Skool	 all ¾, ½ and ¼ engine system cooling hoses with U/G coal mines approved items as required inspect condition and security of radiator hoses for leaks fan hub and tensioner bearings for excessive movement radiator mounting bolts fan blade condition/integrity fan position in shroud (ensure centralised and correct protrusion 18mm to 22mm of blade protruding past shroud towards engine for blockages in cores on both sides of the radiator radiator and pulley guards are in place and secure coolant is correct mix - coloured pre-mix > check coolant is in sight glass on header tank radiator cap condition and ensure 13psi rating radiator air flow (ensure average is within limits/guidelines) > all air is removed from the cooling system after refilling - test at small hoses at the highest points in the system system for leaks after new hoses and coolant refill. Pressurise entire system to operating pressure of 13psi 		Radiator Air flow is measured with a wind meter (anemometer) to check for blockages and/or incorrect fan position/performance – refer SWP CT 3.24
Fuel System	grease		
Pneumatic System	drain • water/contaminants from air tank		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	water/contaminants from primary in-line water trap bowl in the articulation (no oil to be added)		
	clean • air charge Y strainer		
	 leaks on system and repair/report compressor cut out pressure 115-120psi (800–850 kPa) condition of all hoses and fittings scrubber make up tank pressure – 5-7psi (35-50kPa) safety circuit reduced pressure – 90-100psi (620–690 kPa) – located behind the MONEx display dash panel air compressor and delivery fittings internally for any accumulated carbon – replace parts if carbon build up present annual pressure vessel testing is current for the air receiver replace air compressor delivery hose – ensure it's a genuine braided steel PTFE type filter located inside the primary in-line water trap bowl in the articulation (no oil to be added) air tank relief valve pneumatic check valve on air tank/compressor system sensor manifold air filter located inside the secondary in-line water trap bowl behind the MONEx display dash panel (no oil to be added) 		
Electronic Engine Managemen † System	 check both scrubber water shutdown sensor responses using test buttons – hold in to see the MONEx display to communicate low water. Longer than a few seconds will trigger a shutdown event scrubber water shutdown system via the upper ball valve drain point – isolate supply line and drain to this shutdown level coolant loss operation via test valve engine oil pressure loss via test valve deputy bypass Fob functionality (Red Fob) – this confirms fob reader integrity, and checks non-safety bypasses. Alternatively check reader with latching re-set Fob function (Black Fob) rig throttle function via the MONEx screen, dial up RPM to 1800rpm, switch to engage, ensure engine audible response and rpm represents 		These mechanical inspections do not negate recommended 4 yearly regional and site statutory electrical inspection regimes. Electrical Statutory Inspections must be performed by trained and authorised personnel. Refer separate statutory electrical inspection sheet.





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	a hydraulic load is introduced. To check safety cut out, break the pneumatic circuit by individually releasing the park brake, opening the door, and selecting forward or reverse.		Do not apply high pressure water directly on electronic components
	ECUEx – remove hinged top cover and inspect cable management, foreign ingress and cooling water leaks – reverse flush ECUEx cooling line back into the scrubber make-up tank scrubber level sensor operating linkages and floats condition and integrity of all MONEx electronic components the following for incorrect parts, unauthorised modifications, missing parts/guards/covers, loss of identifying labels, cracks, damage, erosion, corrosion, deterioration, loose items, fatigue and contamination a) temperature sensors b) pressure sensors c) timing sensors d) water level sensors e) display screen f) throttle g) battery unit h) solenoids i) fasteners j) mountings k) connectors i) protective boots m) glands n) cable management and routing connectors for tamper proof cable tie. If missing plugs and receptacles are uncoupled and inspected. Ensure connectors are clean, dry and seals are in place. Clean both male and female connectors with approved electrical cleaner/lubricant. Clean pin holes. Check for cracking insulators or discolouring. Ensure earthing is correct, the integrity of moisture and dust barriers intact, locking pins and fasteners are functional and secure. After reconnection, install tamper proof cable tie around connection. throttle pedal torsion spring for evidence of corrosion, pitting, damage or cracking. If evident, return pedal assembly to PPK for torsion spring replacement.		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	operation of the redundant path watchdog system (if fitted). Refer SWP CT2.24.		
	MONEx Fault Log history – manual screen search and record problematic events and/or historic concerns of interest AND/OR electronic upload and capture of data using the MONEx LRS (Log Retrieval System) > engine configuration files via ET Tool to capture the engines current electronic signature		Earlier MONEx versions do not have the ability to use the LRS electronic upload
Mechanical Flameproof System	 scrubber tank by fully draining at the lower socket to remove built up exhaust residue. If a ball valve is used in this port, a plug must accompany it to comply with safety regulations. scrubber tank internally by hosing out with drain plug removed (use appropriate detergent as required) y-piece strainer in scrubber fill line air inlet flametrap, remove and wash in soapy water, dry with compressed air and fit new gaskets on assembly inspect scrubber vibration mounts for wear or damage and ensure area is free from debris compliance labels, present, secure and in date all items for integrity, security and damage fasteners on the mechanical flameproof joints turbo mount for looseness or evidence of broken studs inlet system for leaks by spraying joints with soapy water whilst under 		Code D mechanical integrity inspections and testing must be carried out by a quality assured, certified and registered company. Ref. AS/NZS 3584.3 Use your local COALTRAM®Agent for this purpose. Note! All parts, gaskets and fasteners relating to the flameproof integrity must be genuine COALTRAM® parts to maintain approval compliance. All flameproof components should be removed from the engine system and inspected to ensure compliance. All fasteners should be replaced with correct parts. Ref. AS/NZS 3584.3
	 load at high idle> exhaust system for leaks by spraying joints with soapy water whilst under load at high idle> check for excessive blue exhaust smoke and irritating fumes at varying load and rev ranges. add water conditioner to scrubber make up tank (if applicable to site). Note; do not over dose the scrubber water with conditioner scrubber static water level when stopped using the scrubber dipstick drain sediments/contamination from the scrubber make-up tank via the tanks bottom drain plug – remove cap to depressurise first 		To check intake/exhaust system for leaks operate engine/vehicle when at operating temperature so max turbo boost is achieved. This can be achieved at converter / torque stall. Spray intake joints with soapy water and check for bubbles while under this load. Note - bubbles or exhaust carbon near gaskets/joints indicate bypass/leaks on the exhaust system, bubbles only will appear on air intake leaks.





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
Particulate Filter System (Option 1)	 inspect condition, integrity and security of housing /components housing door/lid seal; replace if not sealing scrubber tank spike valve and operation via hand 		Note! Replace filters as per site specific procedure – only approved filter elements to be fitted – Microfresh (5520000086) or Cosway (5520010707)
Ceramic Wall-Flow Filter System (CWFF) (Option 2	Inspect Safety Isolation Valve x 2 Differential & Back Pressure Sensors, Hosing & Fittings Inlet & Outlet Temperature Sensors Diesel Oxidation Catalyst element – remove and inspect for damage > Filter element – remove and inspect for damage > Heat Shield Rubber, Turbo Inlet Flange, CWFF Heat Shield Rubber, Exhaust Manifold, CWFF Ex Gland, adapters, spigots, conduits, etc (Monitor and Shutdown System, CWFF) Electrical Cables HA110 (inc. push button, window, etc) (Visual) Junction box (Visual) HA116-H (Visual) Antenna Calibrate Differential & Back Pressure Sensors (5520011028) Remove + Clean Flame Trap – Pressure sensor x 2 Filter element Replace Internal sealing gaskets (5520011006)		Filter removal requires opening flameproof joints. Only to be conducted by competent, authorised persons. Ensure new gaskets are available prior to reassembly. Ref. SWP CT 3.53 Flame traps must be cleaned as per OEM recommendations

COALTRAM® VEHICLE SYSTEMS

GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
General	wash		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	wheel chocks		
	decals, stickers and warning labels		
Drive Train General	replace		Front axle bolts - 633Nm (467ftlb) Rear axle bolts - 366Nm (270ftlb) If feeler gauge passes between faces remove bolts, lower axle clean mating face and install new bolts
Drive Train Shafts	 inspect front axle driveshaft universals/slip joint for wear rear axle driveshaft universals/slip joint for wear driveline centre bearings x 2 transverter to centre bearing universals/slip joint for wear upbox / transverter drive shaft universals/slip joint for wear all drive shafts for clearance with hydraulic hoses and cables – through the full steering cycle lock to lock all driveline fasteners, check they are all tight by using appropriate tools 		
Drive Train Lubrication	sample oil from transverter x1 for analysis oil from differentials x2 for analysis oil from planetaries x4 for analysis oil from upbox x1 for analysis replace transverter oil transverter oil filter both differential oils all four planetary oils upbox oil inspect oil levels after allowing vehicle to stand for 5 minutes after filling		
	 oil levels after allowing vehicle to stand for 5 minutes after filling transmission oil level with engine idling all four wheel ends/planetary oil levels front and rear differential centre oil levels 		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 upbox oil level for oil leaks after test driving hub seals for leaks clean transverter suction screen - record contents if foreign/excessive 		
	 test transverter clutch pressures, check using gauge in dash> transmission cooling system rate is sufficient – stall system and heat to approx. 110°C, select neutral and hold at mid-range rpm. Temperature should drop quickly to below 100°C within a few minutes 		Transverter clutch pressures – 240-280 psi All clutch pressures to be within 5psi of each other
Wheels and Tyres	 inspect for loose and missing wheel nuts tyres for damage and record condition and % of tread remaining > tyre pressures with gauge (if pneumatic or air/water filled) > tyre ID labels are in place (e.g. foam filled/solid/ water filled) for compliance labels if pneumatic wheel rim and lock ring for damage/ missing parts tension 		DSF ODSF DSR ODSR Note! Always refer to tyre manufacturers for specific tyres pressures. Always follow site requirements for tyre inspections. Specs below are general ranges only Air filled - Front 8.0 Bar / 116 psi Air filled - Rear 6.0 Bar / 87 psi
Hydraulic General	 all wheel nuts 343Nm (253ftlb) inspect condition of all cylinders crowd cylinder (CT08/CT10LP only) - inspect for signs that the rod clevis has moved - look for gap between rod shoulder and clevis. crowd cylinder (CT08/CT10LP only) - Inspect all the clevis clamp bolts are in place and secure with no visible signs of movement. The correct tension of all clamp bolts must be confirmed > for oil leaks visually check accessible hydraulic hoses, fittings and components functionality of all hydraulics discolouration or aeration of the oil Auxiliary cooling fan condition and system operation replace Master hitch release valve cartridge 		Ref SWP CT 6.72
Hydraulic Lubrication	replace steer and brake pressure filters hydraulic pressure and return filters hydraulic tank breather		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	hydraulic oil – confirm with customer (drain both tanks from bottom drain points)		
	clean		
	If tanks are drained clean both hydraulic tanks internally via the two		
	access covers – wipe out contaminants/sediments with lint free rag		
	internally placed magnets in the bottom of each tank		
	inspect		
	after re-starting		
	return filter restriction indicator—if extended and protruding, investigate		
	reason		
	oil level at front swing open tank sight glass with engine stopped oil level at room main tank sight glass with engine rupping.		
	 oil level at rear main tank sight glass with engine running air operated oil fill pump for operation 		
Steering	test		Pilot pressure
System	Pilot pressure to steering orbital >		30 bar ± 4 (435PSI ± 60)
7,0.0	bypass test steer cylinders		
Braking	inspect		
System	all brake hoses/fittings and replace worn or damaged items		Brake wear results (PASS/FAIL) –
	air pilot vent on the park brake dump valve is orientated towards the		DSF ODSF
	ground		
	park brake actuation valve integrity, rotate valve shaft via the knob this role was allowed allowed for him times.		
	while released and check for binding.		DSR ODSR
	 multi-disc wet brake wear and record results- use the genuine service tool only > 		
	bleed		
	air from the brake circuits after replacing hydraulic tank oil		
	replace		Brake accumulator pressure 10.5 -14.5 MPa (+/- 0.2) 1530 - 2100psi (+/- 30
	secondary brake dump valve air pilot and cartridge		10.5 - 14.5 MI G (17- 0.2) 1550 - 2100psi (+7- 50
	test		Brake release pressure
	brake system pressure settings and re-set if required.		9.2-10.3 MPa (+/- 0.2) 1330 - 1495psi (+/- 30)
	accumulator nitrogen charge pressure by watching the accumulator sharpe gauge reading after engine shutdown. When pressure starts to		(1400+50pci following EP19004 upgrada)
	charge gauge reading after engine shutdown. When pressure starts to drop rapidly it needs to be 1200psi ± 50.		(1600±50psi following EB18006 upgrade)
	 operation of primary and secondary brake dump valve by isolating the 		Refer site compliance section below
	pilot pressure - brakes should not release with this pilot isolated.		
	 brake functions using either the NSW MDG39 or QLD Brake Test Form > 		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
Frame	tension all split caps trunnion fasteners on the articulation, boom, cylinders, master hitch and steering > inspect		Torque Specifications • Crowd cylinder cap bolt 1480Nm
	 all towing, lifting and tie down points integrity of crowd cylinder clevises and bosses all covers, guards, latches and hinges for operation, damage and wear master hitch lock cylinder operation. Check eject/retract direction is correct ROPS/FOPS canopy for security, damage and compliance plate implement /attachment profile with template or against approved GA drawings. master hitch cradle profile with template or against approved GA drawings. security of oscillation/bolster mount bolts bucket tongue fasteners visually for cracks and if required confirm via NDT / crack testing, the 		 (1092ftlb) Hitch QDS cap bolt 1480Nm (1092ftlb) Steer cylinder cap bolt 366Nm (270ftlb) Articulation cap bolt 633Nm (467ftlb) Canopy M22 499Nm (368ftlb) Canopy M30 1253Nm (924ftlb)
	vehicles accessible critical stress points check correct operation and record wear in - articulation points lift arm bucket pins steering pins bolster (axle oscillation points) tilt/crowd cylinder lift cylinders master hitch cylinder(s)		
Vehicle Safety Interlocks	 check door interlock valve is operational - park brake applies when door opened neutral start valve is operational - vehicle will not start in FWD or REV door alarm latch function - when Park Brake is released, partly open door latch for audible horn response hydraulic door interlock valve function - park brake will not release when hydraulic door is opened 		
Cab Section	inspectgauges are all operational		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	all gauge pressures and temps at operating temperature – record		Coolant Temp
	results >		Transmission Temp
	 seat condition and seat suspension for operation seat base, swivel and mountings for security/integrity 		
	all upholstery in cabin		Hydraulic Temp
	horn operation via button on dash		Brake Accumulator Pressure
	brake gauge is dropping rapidly to zero when service and/or park		
	brake is applied		Brake Release Pressure
	emergency brake operation function by applying park brake while		Transmission Pressure
	moving slowly • service brake operation against full engine power in 2 nd gear		Transmission ressure
	operation of all hydraulic functions		Eng. Oil Pressure
	door handle operation		Air Pressure
	pinch point prevention on door		All Flessure
	master hitch removal function isolates until door mounted twist knob is		Backpressure
	operated		
	for operational interference around all control levers, brake and accelerator pedals		
	steering operations – wheel and stick steer		
	steering is isolated when park brake is applied		
	steering wheel and spinner condition and operation		
	 steering column bearing condition, operation and longitudinal movement 		
	remove rubber boot on stick steering lever check integrity, lubricate		
	linkage (valve/o ring grease only)		
	lift rubber boot on main hydraulic lever, use contact cleaner to remove		
	all contamination from the body. Inspect plungers for damage &		
	lubricate (valve/o ring grease only). Inspect actuation disk for		
	secureness and match marking to the lock nut. Check gap between		
	plungers and actuation disk is greater than 0.2mm. Re-secure rubber boot with cable tie.		
GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
Vehicle	inspect		These inspections do not negate regional
Flameproof	operation of all lights (including directional lighting if applicable)		and site statutory electrical inspection
Electrical	 positioning of light directions/ projections 		regimes.
Systems	clean light lenses and any other enclosure windows		Electrical Statutory Inspections must be performed by trained and authorised
	 check camera display and directional switching is operational (if 		personnel.
	applicable)		
	Methane system for damage		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 Fifth light functionality if fitted check condition/integrity of following items hosing and cabling installation and mounting areas for potential hazards fastener security alternators mountings and surrounding area for excessive debris. Clean as required > alternator bearings, mounts, drive covers and drive couplings for wear, noise or damage 		Electrical Flameproof enclosures are recommended to be re-certified every 4 years as a minimum. Code D electrical integrity inspections and testing must be carried out by a quality assured, certified and registered company. Use your local COALTRAM® Agent for this process. Refer separate statutory electrical inspection sheet.
Manual Greasing	grease all points on vehicle, check all are receiving grease		alternator when at operating temperatures
Orcasing	inspect		
	 grease lines for damage/leaks all points are receiving grease 		
Autolube System (If Applicable)	 inspect operation of autolube greaser grease lines for leaks replace grease cartridges 		
	checkvisual evidence of grease at all joints		
	 all lines manually via individual purge points 		
Fire System – Manual	 check fire extinguisher indicator gauge(s) are in the green zone bottle(s) condition condition of fire extinguisher brackets/clamps tags are fitted and in date on all fire extinguishers 		
Fire Suppression (If Applicable)	 check fire suppression system indicator gauge is in the green zone condition/integrity of fire suppression bottle, lines and nozzles 		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 relevant statutory inspections have been completed (system to be tagged/dated) 		
Site	check		
Compliance	 brake test has been carried out as per site regulations 		>Refer to the vehicles approval documents
	 gas test has been carried out as per site regulations 		for base line gas testing
	 exhaust gas emissions are within baseline testing specification limits > 		>Test with engine at operating temperature

LUBRICANTS		
COMPONENT	FLUID TYPE	CAPACITY
ENGINE	SAE 15W40	30L
RADIATOR/ENGINE	PRE-MIX 100% SAE COOLANT	68L - FILL VERY SLOWLY, BLEED AIR FROM EXHAUST COOLING LINES
UP BOX	90W	2L – FILL VERY SLOWLY
TRANSVERTER/TRANSMISSION	10W/30	25L – CHECK WITH ENGINE RUNNING
DIFFERENTIALS	85W140	18L EACH
PLANETARIES	85W140	3.7L EACH
HYDRAULIC TANK	10W/30 – WET BRAKE COMPLIANT	160L – CHECK MAIN REAR TANK LEVEL WITH ENGINE RUNNING, AND FRONT TANK WITH ENGINE STOPPED

FILTERS AND SERVICE ITEM PART N	UMBERS		MAII	MAINTENANCE INTERVAL REQUIREMENTS				
DESCRIPTION	PART NUMBER	QTY				CODE D		
SERVICE KIT PART NUMBER						5520001780		
FILTERS						Yearly /		
FILIERS						2000 hr		





Air Filter (Outer)	5520000240	1	<u> </u>		•	
Engine Oil Filter	5520000240	1				+
		1			•	+
Turbo Saviour Filter	5520000177	1			•	+
Fuel Filter – Primary Water Separator	5520000648	1			•	
Fuel Filter – Secondary	5520001765	1			•	
Transverter Filter	5520001237	1			•	
Transverter Filter Housing O Ring	9236201751	1			•	
Air Filter (Inner)	5520000241	1			•	<u> </u>
Hydraulic Steer Filter – Pressure	5520010556	1			•	
Hydraulic Brake Filter – Pressure	5520000278	1			•	
Hydraulic Return Filter	5541300800	1			•	
Hydraulic Steer Filter O Ring	5520002217	1			•	
Hydraulic Brake Filter O Ring	5520002218	1			•	
Hydraulic Return Filter O Ring Kit	5520002219	1			•	
Sensor Manifold Air Filter Element	5520010490	1			•	
PARTS						
SOS Sample Bottle	5520001865	11			•	
Engine Breather Assembly	5520000214	1			•	
Engine Breather O Ring	5520000217	1			•	
Fan Belts 168kw	5520000350	2			•	
Water Pump Belt	5520000384	1			•	
Flametrap Gasket	5520000093	2			•	
Transverter Screen Gasket	5533358300	1			•	
Diff Breather	5534307200	2			•	
Upbox Breather	5534307200	1			•	
Transverter Breather	5541501500	1			•	
Hydraulic Tank Breather	5537168400	1			•	1
Brake Wear Indicator Tool	5520000387	1			•	
Water Pump Tensioner Pulley Bearing	5520000037	2			•	1
Water Pump Tensioner Pulley Seal	5520009346	2			•	1
Coolant	5520000644	80L			•	
Compressor Delivery Hose	5520000427	1			•	<u> </u>
Air Tank Check Valve	5520000174	1			•	<u> </u>
Air Tank Relief Valve	5520000150	1			•	†
Air Separator Filter Element	5520001864	1			•	†
Radiator Hose – Upper	5520001233	2			•	+
Radiator Hose Clamp	5520000454	4	1		•	<u> </u>
Radiator Hose - Lower ODS	5520001232	1			•	†
Radiator Hose – Lower DS	5520001232	1			•	+





Hose Clamp – Suit Lower Hoses	5520000659	4			•	
Exhaust Manifold Head Bypass Hose	5520001234	1			•	
Exhaust Manifold Water Pump Bypass Hose	5520001235	1			•	
Hose Clamp – Suit Bypass Hoses	5520001703	4			•	
Secondary brake dump valve cartridge	5520000318	1			•	
Secondary brake dump valve pilot	5520002159	1			•	
Master hitch release valve cartridge	5520002021	1			•	

Additional Parts not included in service kit

DESCRIPTION	PART NUMBER	QTY
Autolube grease cartridge 450gm	5520001696	2

Ceramic Wall-Flow Filter System (CWFF) (if fitted)

DESCRIPTION	PART NUMBER	QTY
Water Pump Belt (Relocated Tensioner)	5520011040	1
Gasket – Intake cone to flametrap /Flametrap to inlet manifold	5520011005	2
Gasket – CWF inner shell to downpipe	5520011004	1
Gasket – CWF element internal	5520011006	2





COALTRAM® CT08/CT10/CT10LP - CODE D1 MAINTENANCE - 2 Yearly / 4000 Hour

For detailed maintenance instructions refer to the Service Manual and relevant Workplace Instructions.

Regularly check compliance and upgrades relating to Industry Bulletins and Alerts.

VEHICLE PLANT NUMBER			HIRER /OWNER				
VEHICLE SERIAL NUMBER			DATE				
SITE			METHANE HOUR	RS			
PROJECT/JOB NUMBER			MONEX HOURS				
IMMEDIATE REPAIRS COMPLE	TED:						
FUTURE REPAIRS REQUIRED:							
TECHNICAL BULLETINS AND SAFET	TY ALERTS			It's			ensure compliance. No and initial
It's recommended that a c conducted at Code D leve OEM and industry requirem	omplete TBGAS (Technical Bulletin and Gendal and above to ensure the vehicle and Diese ents.	eral Alerts el Engine S	Sheet) Audit is System complies with		Yes		No
ECHNICIANS							
PRINT NAME(S)		SIGN				DATE	
PRINT NAME(S)		SIGN				DATE	
SUPERVISORS		I I				I I	1
PRINT NAME(S)		SIGN				DATE	



COALTRAM MAINTENANCE SAFETY INFORMATION

- Ensure that all safety information is read and understood before maintenance or repair task is performed
- The person who is undertaking the repair or maintenance task must be qualified and competent to complete the task being undertaken
- PPE. Appropriate PPE must be worn including Hi Visibility Clothing, Safety glasses, Protective Footwear, Hand Protection (as required) Hearing Protection (as required), hard hat (as required), Dust Masks (as required).
- Isolation locks, Danger Tags and Out of Service tags MUST be used in accordance with site requirements and machine specific isolation procedure.
- All lifting gear must have current inspection tag, be suitably rated for item being lifted, and be in good condition.
- Lifts requiring mechanical aids must only be conducted by trained and competent personnel.
- When lifting objects with mechanical aid, keep clear of all potential crush or pinch points.
- Keep clear of suspended loads. Use Safety line to control load when required.
- Manual Handling. Do not lift or move objects by hand that are too heavy to do so. When manual handling objects use correct manual handling techniques.
- Pinch Points. Keep all body parts clear of pinch points.
 Ensure hands and feet are clear when lifting and lowering objects
- Machine support stands. Ensure machine support stands are of suitable capacity and in serviceable condition.
- Slips, trips, falls. Ensure work area is clear of objects that could cause a slip, trip, Fall hazard.
- Warning labels on machine must be observed



 Prohibition labels on machine must be observed



 Information labels on machine must be observed



14. Service points on machine must be observed



- 15. Climbing on top of machine. Always maintain 3 point contact when climbing on top of machine.
- Hot surfaces. Be aware of hot surfaces when machine has been running.
- Hot fluids. Be aware hot pressurised fluids. This includes engine coolant, hydraulic oil, transmission oil, diesel fuel.
- Chemical injuries: ensure that Material Safety Data Sheets are available and understood for all fluids used on machine.
- Stored energy. Ensure all stored energy has been depleted and raised cylinders supported before conducting repairs or maintenance.
- Accumulator pre-charge pressure. When all stored energy
 has been depleted the Nitrogen Pressure in the Brake
 Accumulator is 83 Bar (1,200 psi). DO NOT attempt to
 release pressure without correct equipment. DO NOT
 disassemble accumulator without releasing Nitrogen
 pressure to zero.
- 21. Falling objects. Do not work under unsupported roof or in area where there is risk of falling objects.
- 22. Live Testing: Live testing must only be done after a task specific risk assessment (take 5 or similar) and in accordance with site requirements. The person operating the machine during live testing must be competent to operate the machine.
- Crush points: Ensure that Articulation lock is fitted when conducting maintenance or repairs in crush zones.

- Working under boom: Do not enter under boom unless boom rated, designed for purpose supports have been fitted, boom has been lowered onto supports and machine is isolated.
- 25. Hydraulic injection: Ensure that all stored hydraulic energy has been depleted before disconnecting hydraulic hose or fitting. Do not use your hand to find a hydraulic leak. Use a piece of Cardboard or similar to check for leaks. In the event of a suspected hydraulic injection refer to site specific procedure for fluid injection
- 26. Compressed air: Ensure air receiver has been isolated before conducting repairs on air system. If working on air receiver the air receiver must be depressurised before commencing work. NOTE: The accumulator on the transmission declutches valve will maintain a small volume of compressed air. Follow instructions on how to remove air accumulator pressure (behind gauge panel) to discharge.
- 27. Current information: Ensure current information is available prior to commencing maintenance or repair task.
- Guards: Ensure all guards and covers removed during maintenance or repairs are replaced prior to starting machine
- 29. Ventilation Ensure adequate ventilation when testing machine
- Do not conduct electric welding on machine unless the battery has been removed and Alternator disconnected by competent and authorised person.
- 31. Stay clear of rotating parts

- 32. Always use tools that are in good serviceable condition
- 33. Take care to not damage wiring, hydraulic or air lines during repairs and maintenance.
- Ensure all electrical cables are placed in positions away from any possible mechanical damage and away from fuel lines.
- Gas Struts. (used on covers) contain compressed gas even when fully extended. Before removing, check for damage. Damage may cause an uncontrolled release of energy or exploding parts when removing strut.





RECOMMENDED COALTRAM MAINTENANCE AND COMPLIANCE SCHEDULE

REF. DOCS. AS3584.3, MDG1

MAINTENANCE EXAMINATION CODE	CALENDER BASED REGIME	ENGINE HOURS REGIME			
CODE A EXAMINATION - Maintenance	10				
CODE B EXAMINATION - Maintenance	WEEKLY	50			
CODE C EXAMINATION - Maintenance	MONTHLY	250			
CODE C1 EXAMINATION - Maintenance	3 MONTHLY	500			
CODE C2 EXAMINATION - Maintenance	6 MONTHLY	1000			
CODE D EXAMINATION – Maintenance	YEARLY	2000			
CODE D1 EXAMINATION - Maintenance	2 YEARLY	4000			
CODE D2 EXAMINATION - Maintenance	NOT YEARLY BASED	8000			
COMPLIANCE OVE	RHAUL - Mechanical	2 YEARLY			
Mechanical Compliance Overhauls are recommende	CODE D MECHANICAL COMPLIANCE OVERHAUL Mechanical Compliance Overhauls are recommended to be completed by an accredited COALTRAM Agent and are to be aligned with Maintenance Examinations CODE C level or greater				
COMPLIANCE OV	4 YEARLY				
CODE D ELECTRICAL C Electrical Compliance Overhauls are recommended	OR as approved by Site Manager using site historical evidence and risk assessments in conjunction with the COALTRAM Agent				





Notes:

- If completing this service in conjunction with a code D, some tasks will be duplicated on the TDES paperwork. There is no requirement for the tasks to be repeated, though, both sets of paperwork should be completed.
- If using 4,000 hour service as basis for 12,000 hour, refer to critical component list for additional safety critical component requirements.
- When replacing safety critical components attach tag (5520010495) to identify install date. Tag can be attached with cable tie or suitable adhesive

COALTRAM® ENGINE SYSTEMS

GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS			
Vehicle Hours	engine hours and record on page 1. Record both MONEx screen and Methane display hours		* This symbol beside an instruction indicates there may be other activities to complete in conjunction with this task in a different area of this document. Eg. When the planetary wheel ends are drained, you need to measure the brake wear before refilling with oil*			
Engine	remove		Tensions - • engine mount bolts - 189Nm (139 ft/lbs)			
	 vehicle after fitting wash down cover to MONEx display screen and avoid direct high pressure water on electrical devices. Wash complete engine system and all engine bay areas of excessive coal, dust, oil, mud, and debris accumulated materials from the engine bay in a forward direction away from the radiator 		Pressures when engine is at operating temperature – Oil Pressure (Min 20psi) – Idle Oil Pressure (80± 20psi) - Max Revs			
	 unusual knocks and noises oil leaks engine mounts and bolts. starter motor is secure sump security / integrity and corrosion water ingress into engine flywheel housing – remove bottom plug and record contents 		CT08/10/ 10LP with P with 45" 49" diameter diameter low tyres and profile larger tyres only			
	 engine intake and exhaust valve clearances, adjust as required bolts mounting engine to cradle sample oil from engine x 1 for analysis 		Standard Spec - 13.7 ratio Converte r Standard Spec - 13.1 ration Converte r			





or cleaner restriction indicators x 2 are serviceable and in the correct zone system for security and leaks hosing/pipe integrity air charge pipe doesn't contact/rub on other components air cleaner housing integrity test operation of choker/strangler valve as per workplace instructions > GROUP MAINTENANCE / COMPLIANCE CHECKS INITIAL COMMENTS / RESULTS / ACTIONS Cooling System Clean radiator thoroughly from the rear side and the front engine bay side with a high flow hose and detergent. Note! High pressure water at close range diagonally across radiator may fold over fins and restrict air flow replace water pump FRAS V-belt - ensure correct tension after test running for a short period of time engine cooling fan FRAS V-belts - ensure correct tension after test running for a short period of time water pump belt tensioner pulley bearings and seals upper and lower radiator hoses and clamps exhaust manifold head bypass hose and clamps exhaust manifold /water pump byposs hose and clamps	GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
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engine oil filter turbo saviour oil filter engine breather engine breather hose re-check after running engine oil level leaks oil pressure> Record result at operating temperature ide, light and stall rpm > Record result replace oir cleaner inner and outer filter elements Intake choker valve assembly if vehicle history shows service life is due—Choker has a 4000 hour recommended service life inspect oir cleaner restriction indicators x 2 are serviceable and in the correct zone system for security and leaks hosing/pipe integrity oir charge pipe doesn't contact/rub on other components oir cleaner hosing integrity test operation of choker/strangler valve as per workplace instructions > GROUP MAINTENANCE / COMPLIANCE CHECKS Cooling System Cooling System Cooling System Amintenance / Compliance /				Flight 2220+ 50 2220+ 50
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exhaust manifold /water pump bypass hose and clamps				
engine coolant >				





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 engine thermostat and gasket all ³/₄, ¹/₂ and ¹/₄ engine system cooling hoses with U/G coal mines approved items radiator cap with new item – 13psi only radiator cap neck and gasket inspect water pump tell-tale hole for signs of leakage fan hub and tensioner bearings for excessive movement radiator mounting bolts fan blade condition/integrity fan position in shroud (ensure centralised and correct protrusion 18mm to 22mm of blade protruding past shroud towards engine for blockages in cores on both sides of the radiator radiator and pulley guards are in place and secure coolant is correct mix - coloured pre-mix > check coolant is in sight glass on header tank radiator air flow (ensure average is within limits/guidelines) > all air is removed from the cooling system after refilling – test at small hoses at the highest points in the system system for leaks after new hoses and coolant refill. Pressurise entire system to operating pressure of 13 psi 		Recommended to use pre-mixed Caterpillar ELC (Extra Long Life Coolant) or equivalent. Radiator Air flow is measured with a wind meter (anemometer) to check for blockages and/or incorrect fan position/performance – refer SWP 3.24
Fuel System	 fan and idler pulley sample fuel from tank x 1 for analysis drain sediments and potential water from fuel tank drain plug – record any contamination or water in the fuel tank replace all fuel filters emergency fuel shut off valve all fuel hoses fuel tank check valve inspect fuel lines for contact on any hot components fuel tank cap and strainer condition fuel gauge level/operation/condition for leaks 		
Pneumatic System	drain • water/contaminants from air tank		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 clean air charge Y strainer choker flow control valve (item 22 pneumatic schematic) choker application valve (item 21 pneumatic schematic), remove, clean, replace breather and check operation safety circuit pilot valve (item 12A pneumatic circuit), remove, clean, replace breather and check operation additional start valve (item 89 pneumatic circuit), remove, clean, replace breather and check operation relief valve (item 88 pneumatic schematic), remove, clean and check operation cab door interlock valve, remove, clean, replace breather and check operation isolation transmission declutch valve (item 12 pneumatic schematic), remove, clean and check operation transmission declutch valve (item 13 pneumatic schematic), remove, clean, check piston seal, lubricate (valve/o ring grease) and check 		
	 inspect leaks on system and repair/report compressor cut out pressure 115-120psi (800–850 kPa) condition of all hoses and fittings scrubber make up tank pressure – 5-7psi (35-50kPa) safety circuit reduced pressure – 90-100psi (620–690 kPa) – located 		
	behind the MONEx display dash panel air compressor and delivery fittings internally for any accumulated carbon – replace parts if carbon build up present annual pressure vessel testing is current for the air receiver main isolation valve for leaks when in isolated position		
	 air compressor delivery hose – ensure it's a genuine braided steel PTFE type filter located inside the primary in-line water trap bowl in the articulation (no oil to be added) air tank relief valve pneumatic check valve on air tank/compressor system sensor manifold air filter located inside the secondary in-line water trap bowl behind the MONEx display dash panel (no oil to be added) 		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
Electronic Engine Managemen t System	 both scrubber water shutdown sensor responses using test buttons – hold in to see the MONEx display to communicate low water. Longer than a few seconds will trigger a shutdown event scrubber water shutdown system via the upper ball valve drain point – isolate supply line and drain to this shutdown level coolant loss operation via test valve engine oil pressure loss via test valve deputy bypass Fob functionality (Red Fob) – this confirms fob reader 		These mechanical inspections do not negate recommended 4 yearly regional and site statutory electrical inspection regimes. Electrical Statutory Inspections must be performed by trained and authorised personnel.
	 integrity, and checks non-safety bypasses. Alternatively check reader with latching re-set Fob function (Black Fob) rig throttle function via the MONEx screen, dial up RPM to 1800rpm switch to engage, ensure engine audible response and rpm represent a hydraulic load is introduced. To check safety cut out, break the pneumatic circuit by individually releasing the park brake, opening the door, and selecting forward or reverse. 	5	Refer separate statutory electrical inspection sheet. Do not apply high pressure water directly on electronic components
	 ECUEx – remove hinged top cover and inspect cable management, foreign ingress and cooling water leaks – reverse flush ECUEx cooling line back into the scrubber make-up tank scrubber level sensor operating linkages and floats condition and integrity of all MONEx electronic components the following for incorrect parts, unauthorised modifications, missing parts/guards/covers, loss of identifying labels, cracks, missing seals, damage, erosion, corrosion, deterioration, loose items, fatigue and contamination temperature sensors pressure sensors timing sensors water level sensors display screen throttle battery unit solenoids fasteners mountings connectors protective boots 		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 cable management and routing connectors for tamper proof cable tie. If missing plugs and receptacles are uncoupled and inspected. Ensure connectors are clean, dry and seals are in place. Clean both male and female connectors with approved electrical cleaner/lubricant. Clean pin holes. Check for cracking insulators or discolouring. Ensure earthing is correct, the integrity of moisture and dust barriers intact, locking pins and fasteners are functional and secure. After reconnection, install tamper proof cable tie around connection. Unbolt pedal assembly from floor plate, clean and inspect throttle pedal torsion spring for evidence of corrosion, pitting, damage or cracking. If evident, return pedal assembly to PPK for torsion spring replacement. Main Wiring harness Solenoid valves x 3 (isolation, start, rig bolter) test operation of the redundant path watchdog system (if fitted). Refer SWP CT2.24. 		Earlier MONEx versions do not have the ability to use the LRS electronic upload
	MONEx Fault Log history – manual screen search and record problematic events and/or historic concerns of interest AND/OR electronic upload and capture of data using the MONEx LRS (Log Retrieval System) > engine configuration files via ET Tool to capture the engines current electronic signature		
Mechanical Flameproof System	 scrubber tank by fully draining at the lower socket to remove built up exhaust residue. If a ball valve is used in this port, a plug must accompany it to comply with safety regulations. scrubber tank internally by hosing out with drain plug removed (use appropriate detergent as required) y-piece strainer in scrubber fill line air inlet flametrap, remove and wash in soapy water, dry with compressed air and fit new gaskets on assembly inspect scrubber vibration mounts for wear or damage and ensure area is free from debris compliance labels, present, secure and in date all items for integrity, security and damage fasteners on the mechanical flameproof joints 		Code D mechanical integrity inspections and testing must be carried out by a quality assured, certified and registered company. Ref. AS/NZS 3584.3 Use your local COALTRAM®Agent for this purpose. Note! All parts, gaskets and fasteners relating to the flameproof integrity must be genuine COALTRAM® parts to maintain approval compliance. All flameproof components should be removed from the engine system and inspected to ensure compliance. All fasteners should be replaced with correct parts. Ref. AS/NZS 3584.3





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 inlet system for leaks by spraying joints with soapy water whilst under load at high idle> exhaust system for leaks by spraying joints with soapy water whilst under load at high idle> check for excessive blue exhaust smoke and irritating fumes at varying load and rev ranges. add water conditioner to scrubber make up tank (if applicable to site). Note; do not over dose the scrubber water with conditioner scrubber static water level when stopped using the scrubber dipstick sediments/contamination from the scrubber make-up tank via the tanks bottom drain plug – remove cap to depressurise first place scrubber water fill valve seal replace or overhaul turbo charger assembly if vehicle history shows service life is due – Turbo charger has a 4000 hour recommended service life – if replaced engrave date of replacement and current engine hours on exhaust section. 		To check intake/exhaust system for leaks operate engine/vehicle when at operating temperature so max turbo boost is achieved. This can be achieved at converter / torque stall. Spray intake joints with soapy water and check for bubbles while under this load. Note - bubbles or exhaust carbon near gaskets/joints indicate bypass/leaks on the exhaust system, bubbles only will appear on air intake leaks.
Particulate Filter System (Option 1)	 condition, integrity and security of housing /components Inspect housing door/lid seals; replace if not sealing scrubber tank spike valve and its operation via removal and bench testing 		Note! Replace filters as per site specific procedure – only approved filter elements to be fitted – Microfresh (5520000086) or Cosway (5520010707)
Wall-Flow Filter System (CWFF) (Option 2	 Safety Isolation Valve x 2 Differential & Back Pressure Sensors, Hosing & Fittings Inlet & Outlet Temperature Sensors Diesel Oxidation Catalyst Filter element – remove and inspect for damage. Heat Shield Rubber, Turbo Inlet Flange, CWFF Heat Shield Rubber, Exhaust Manifold, CWFF Ex Gland, adapters, spigots, conduits, etc (Monitor and Shutdown System, CWFF) Electrical Cables HA110 (inc. push button, window, etc) (Visual) Junction box (Visual) HA116-H (Visual) Antenna Flame Trap – Pressure sensor x 2 Filter element > Place Internal sealing gaskets (5520011006) 		Filter removal requires opening flameproof joints. Only to be conducted by competent, authorised persons. Ensure new gaskets are available prior to reassembly. Ref. SWP CT 3.53 Flame traps must be cleaned as per OEM recommendations



COALTRAM® VEHICLE SYSTEMS

GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
General	wash entire vehicle thoroughly. Fit wash down cover to MONEx display screen and avoid direct high pressure water on electrical devices inspect steering articulation lock boom safety support locks safety triangles wheel chocks decals, stickers and warning labels		
Drive Train General	replace		Front axle bolts - 633Nm (467ftlb) Rear axle bolts - 366Nm (270ftlb) If feeler gauge passes between faces, remove bolts, lower axle clean mating faces and install new bolts
Drive Train Shafts	 inspect front axle driveshaft universals/slip joint for wear rear axle driveshaft universals/slip joint for wear driveline centre bearings x 2 transverter to centre bearing universals/slip joint for wear upbox / transverter drive shaft universals/slip joint for wear all drive shafts for clearance with hydraulic hoses and cables – through the full steering cycle lock to lock all driveline fasteners, check they are all tight by using appropriate tools 		
Drive Train Lubrication	 oil from transverter x1 for analysis oil from differentials x2 for analysis oil from planetaries x4 for analysis oil from upbox x1 for analysis 		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	replace		Transverter clutch pressures – 240-280 psi All clutch pressures to be within 5psi of each
Wheels and Tyres Hydraulic General	inspect for loose and missing wheel nuts tyres for damage and record condition and % of tread remaining > tyre pressures with gauge (if pneumatic or air/water filled) > tyre ID labels are in place (e.g. foam filled/solid/ water filled) for compliance labels if pneumatic wheel rim and lock ring for damage/ missing parts tension all wheel nuts 343Nm (253ftlb) inspect condition of all cylinders		other DSF ODSF DSR ODSR Note! Always refer to tyre manufacturers fo specific tyres pressures. Always follow site requirements for tyre inspections. Specs below are general ranges only Air filled - Front 8.0 Bar / 116 psi Air filled - Rear 6.0 Bar / 87 psi
General	 condition of all cylinders crowd cylinder (CT08/CT10LP only) - inspect for signs that the rod clevis has moved - look for gap between rod shoulder and clevis. crowd cylinder (CT08/CT10LP only) - Inspect all the clevis clamp bolts are in place and secure with no visible signs of movement. The correct tension of all clamp bolts must be confirmed > for oil leaks visually check accessible hydraulic hoses, fittings and components functionality of all hydraulics discolouration or aeration of the oil 		Ref SWP CT 6.72 Ref SR - Hydraulic Test CT08/10/LP.





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	Auxiliary cooling fan condition and system operation		
	replace		
	master hitch release valve cartridge		
	test		
	 and record all circuit pressure settings > 		
	and record all pump flows		
	 cylinder piston bypass and cylinder valve operations 		
Hydraulic	replace		
Lubrication	steer and brake pressure filters		
	hydraulic pressure and return filters		
	hydraulic tank breather		
	 hydraulic oil – confirm with customer (drain both tanks from bottom 		
	drain points)		
	clean		
	If oil is drained clean both hydraulic tanks internally via the two access		
	covers – wipe out contaminants/sediments with lint free rag		
	internally placed magnets in the bottom of each tank		
	inspect		
	after re-starting		
	 return filter restriction indicator if extended and protruding, investigate 		
	reason		
	oil level at front swing open tank sight glass with engine stopped		
	oil level at rear main tank sight glass with engine running		
	air operated oil fill pump for operation		
Steering	overhaul or replace		Steer amplifier part #5520004498
System	steer amplifier >		Steer cylinder part #5520002016
•	steer cylinders >		
Braking	inspect		
System	all brake hoses/fittings and replace worn or damaged items		
,	air pilot vent on the park brake dump valve is orientated towards the		
	ground		Durales and are alle (DACC/FAII)
	multi-disc wet brake wear and record results- use the genuine service		Brake wear results (PASS/FAIL) –
	tool only >		DSF ODSF
	park brake valve assembly for installation hours, recommendation to		
	replace after 4,000 hours		DSR ODSR
	bleed		
	air from the brake circuits after replacing hydraulic tank oil		
	replace		
		1	I Praka gaarmulatar prassura
	·		Brake accumulator pressure
	l ·		10.5 -14.5 MPa (+/- 0.2) 1530 - 2100psi (+/- 30)





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 accumulator nitrogen charge pressure by watching the accumulator charge gauge reading after engine shutdown. When pressure starts to drop rapidly it needs to be 1200psi ± 50. operation of primary and secondary brake dump valve by isolating the pilot pressure - brakes should not release with this pilot isolated. brake functions using either the NSW MDG39 or QLD Brake Test Form > operation of check valve (item 87 pneumatic schematic) - with engine running, park brake applied and forward or reverse selected, isolate main air to create shutdown. Ensure transmission does not engage and drive gaggingt the brake during shutdown. 		9.2-10.3 MPa (+/- 0.2) 1330 - 1495psi (+/- 30) (1600±50psi following EB18006 upgrade) Refer site compliance section below
Framo	drive against the brake during shutdown.		
Frame	 all split caps trunnion fasteners on the articulation, boom, cylinders, master hitch and steering > inspect all towing, lifting and tie down points integrity of crowd cylinder clevises and bosses all covers, guards, latches and hinges for operation, damage and wear master hitch lock cylinder operation. Check eject/retract direction is correct ROPS/FOPS canopy for security, damage and compliance plate implement /attachment profile with template or against approved GA drawings. master hitch cradle profile with template or against approved GA drawings. security of oscillation/bolster mount bolts bucket tongue fasteners visually for cracks and via NDT / crack testing, the vehicles critical stress 		Crowd cylinder cap bolt 1480Nm (1092ftlb) Hitch QDS cap bolt 1480Nm (1092ftlb) Steer cylinder cap bolt 366Nm (270ftlb) Articulation cap bolt 633Nm (467ftlb) Canopy M22 499Nm (368ftlb) Canopy M30 1253Nm (924ftlb) NDT drawing
	points as per vehicle specific drawing>		CT08/10LP - 5520006489
	check correct operation and record wear in -		CT10 - 5520006490
Vehicle	check		
Safety Interlocks	 door interlock valve is operational - park brake applies when door opened neutral start valve is operational - vehicle will not start in FWD or REV 		





door alarm latch function - when Park Brake is released, partly open door latch for audible horn response hydraulic door interlock valve function - park brake will not release when hydraulic door is opened	GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
Cab Section Section Section Section Gauges are all operational all gauge pressures and temps at operating temperature – record results >		 door latch for audible horn response hydraulic door interlock valve function - park brake will not release 		
gauges are all operational all gauge pressures and temps at operating temperature – record results > seat condition and seat suspension for operation or seat base, swivel and mountings for security/integrity all upholstery in cabin horn operation via button on dash brake gauge is dropping rapidly to zero when service and/or park brake is applied emergency brake operation function by applying park brake while moving slowly service brake operation against full engine power in 2 nd gear operation of all hydraulic functions door handle operation pinch point prevention on door master hitch removal function isolates until door mounted twist knob is operated for operational interference around all control levers, brake and accelerator pedals steering operations – wheel and strick steer steering siscloted when park brake is applied steering operation of onstick steering lever check integrity, lubricate linkage (valve/o ring grease only) replace Vehicle Romeproof Electrical Systems Methane system for damage Coolant Temp Transmission Temp Hydraulic Temp Brake Accum Pressure Fransmission Pressure Fransmission Pressure Fransmission Pressure Fransmission Pressure Fransmission Pressure Brake Release Pressure Fransmission Pressure Fransmi	Cab Section			
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Methane system for damage				personnei.





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 check condition/integrity of following items hosing and cabling installation and mounting areas for potential hazards fastener security alternators mountings and surrounding area for excessive debris. Clean as required > alternator bearings, mounts, drive covers and drive couplings for wear, noise or damage 		Electrical Flameproof enclosures are recommended to be re-certified every 4 years as a minimum. Code D electrical integrity inspections and testing must be carried out by a quality assured, certified and registered company. Use your local COALTRAM® Agent for this process. Refer separate statutory electrical inspection sheet.
			Note! Do not hose water directly on alternator when at operating temperatures
Manual Greasing	grease		
	grease lines for damage/leaksall points are receiving grease		
Autolube System (If Applicable)	inspect		
Fire System – Manual	 all lines manually via individual purge points check fire extinguisher indicator gauge(s) are in the green zone bottle(s) condition condition of fire extinguisher brackets/clamps tags are fitted and in date on all fire extinguishers 		
Fire Suppression (If Applicable)	 check fire suppression system indicator gauge is in the green zone condition/integrity of fire suppression bottle, lines and nozzles relevant statutory inspections have been completed (system to be tagged/dated) 		
Site Compliance	 check brake test has been carried out as per site regulations gas test has been carried out as per site regulations exhaust gas emissions are within baseline testing specification limits > 		>Refer to the vehicles approval documents for base line gas testing >Test with engine at operating temperature





LUBRICANTS	LUBRICANTS				
COMPONENT	FLUID TYPE	CAPACITY			
ENGINE	SAE 15W40	30L			
RADIATOR/ENGINE	PRE-MIX 100% SAE COOLANT	68L - FILL VERY SLOWLY, BLEED AIR FROM EXHAUST COOLING LINES			
UP BOX	90W	2L – FILL VERY SLOWLY			
TRANSVERTER/TRANSMISSION	10W/30	25L – CHECK WITH ENGINE RUNNING			
DIFFERENTIALS	85W140	18L EACH			
PLANETARIES	85W140	3.7L EACH			
HYDRAULIC TANK	10W/30 – WET BRAKE COMPLIANT	160L – CHECK MAIN REAR TANK LEVEL WITH ENGINE RUNNING, AND FRONT TANK WITH ENGINE STOPPED			

FILTERS AND SERVICE ITEM PART NUMBERS			MAINTENANCE INTERVAL REQUIREMENTS	
DESCRIPTION	PART NUMBER	QTY	CODE D1	
SERVICE KIT PART NUMBER			5520003334	
FILTERS			4 yearly / 4000hr	
Air Filter (Outer)	5520000240	1		
Engine Oil Filter	5520000494	1	•	
Turbo Saviour Filter	5520000177	1		
Fuel Filter – Primary Water Separator	5520000648	1	•	
Fuel Filter – Secondary	5520001765	1		
Transverter Filter	5520001237	1	•	
Transverter Filter Housing O Ring	9236201751	1		
Air Filter (Inner)	5520000241	1	•	
Hydraulic Steer Filter – Pressure	5520010556	1	•	
Hydraulic Brake Filter – Pressure	5520000278	1		
Hydraulic Return Filter	5541300800	1	•	
Hydraulic Steer Filter O Ring	5520002217	1	•	
Hydraulic Brake Filter O Ring	5520002218	1		
Hydraulic Return Filter O Ring	5520002219	1		
Hydraulic Return Filter O Ring	5520009059	1	•	
Sensor Manifold Air Filter Element	5520010490	1		
PARTS				



COALTRAM®

FILTERS AND SERVICE ITEM PART NUMBERS		MAINTENANCE INTERVAL REQUIREMENTS				
DESCRIPTION	PART NUMBER	QTY			CODE D1	
SOS Sample Bottle	5520001865	11			•	
Engine Breather Assembly	5520000214	1			•	
Engine Breather O Ring	5520000217	1			•	
Fan Belts 168kw	5520000350	2			•	
Water Pump Belt	5520000384	1			•	
Flametrap Gasket	5520000093	2			•	
Transverter Screen Gasket	5533358300	1			•	
Diff Breather	5534307200	2			•	
Upbox Breather	5534307200	1			•	
Transverter Breather	5541501500	1			•	
Hydraulic Tank Breather	5537168400	1			•	
Brake Wear Indicator Tool	5520000387	1			•	
Water Pump Tensioner Pulley Bearing	5520000037	2			•	
Water Pump Tensioner Pulley Seal	5520009346	1			•	
Coolant	5520000644	80L			•	
Thermostat (Regulator)	5520001984	2			•	
Thermostat Gasket	5520000390	1			•	
Tappet Cover Gasket	5520000211	2			•	
Compressor Delivery Hose	5520000427	1			•	
Air Tank Check Valve	5520000174	1			•	
Air Tank Relief Valve	5520000150	1			•	
Air Separator Filter Element	5520001864	1			•	
Radiator Hose - Upper	5520001233	2			•	
Radiator Hose Clamp	5520000454	4			•	
Radiator Hose – Lower ODS	5520001232	1			•	
Radiator Hose – Lower DS	5520001686	1			•	
Hose Clamp – Suit Lower Hoses	5520000659	4			•	
Exhaust Manifold Head Bypass Hose	5520001234	1			•	
Exhaust Manifold Water Pump Bypass Hose	5520001235	1			•	
Hose Clamp – Suit Bypass Hoses	5520001703	4			•	
Manual Fuel Isolation Valve	5520000430	1			•	
Scrubber Water Supply Valve Seal	5520000061	1			•	
Turbo Charger Assembly	5520001754NFO	1			•	
Choker Actuator Assembly	5520003333	1			•	
Radiator Cap – 13 psi	5520000386	1			•	
Radiator Cap Neck	5520000698	1			•	
Radiator Neck Gasket	5520000104	1			•	
MONEx Main Harness	5520001218	1			•	
Solenoid Valves	5520000592	3			•	





FILTERS AND SERVICE ITEM PART NUMBERS			MAINTENANCE INTERVAL REQUIREMENTS				
DESCRIPTION	PART NUMBER	QTY	CODE	1			
Secondary brake dump valve cartridge	5520000318	1	•				
Secondary brake dump valve pilot	5520002159	1	•				
Neutral start adaptor o ring	5520001103	1	•				
Fuel tank check valve	5520000172	1	•				
Master hitch release valve	5520002021	1					

Additional Parts not included in service kit

DESCRIPTION	PART NUMBER	QTY
Main Hydraulic Control Joystick	5520000299	1
Steer amplifier valve	5520004498	1
Steer cylinder	5520002016	2
Park brake valve	5520000166	1
Water Pump Belt (Relocated Tensioner)	5520011040	1
Autolube grease cartridge 450gm	5520001696	2
Engine breather hose	5520001806	1

Ceramic Wall-Flow Filter System (CWFF) (if fitted)

DESCRIPTION	PART NUMBER	QTY
Safety Isolation Valve	5520000592	2
Water Pump Belt (Relocated Tensioner)	5520011040	1
Gasket – Intake cone to flametrap /Flametrap to inlet manifold	5520011005	2
Gasket – CWFF inner shell to downpipe	5520011004	1
Gasket – CWFF element internal	5520011006	2





COALTRAM® CT08/CT10/10LP - CODE D2 MAINTENANCE - 8000 Hour

For detailed maintenance instructions refer to the Service Manual and relevant Workplace Instructions.

Regularly check compliance and upgrades relating to Industry Bulletins and Alerts.

VEHICLE PLANT NUMBER			HIRER /OWNER			
VEHICLE SERIAL NUMBER			DATE			
SITE			METHANE HOURS	3		
PROJECT/JOB NUMBER			MONEx HOURS			
IMMEDIATE REPAIRS COMPL	ETED:					
FUTURE REPAIRS REQUIRED): -					
TECHNICAL BULLETINS AND SA	FETY ALERTS			It's the Owner's res	ponsibility to	ensure compliance.
Supervisor to circle Yes/No It's recommended that a complete TBGAS (Technical Bulletin and General Alerts Sheet) Audit is conducted at Code						
D level and above to ensure the vehicle and Diesel Engine System complies with OEM and industry requirements.				Yes		No
TECHNICIANS						
PRINT NAME(S)	S	SIGN			DATE	
PRINT NAME(S)	S	SIGN			DATE	
SUPERVISORS					1	
PRINT NAME(S)	S	SIGN			DATE	





COALTRAM MAINTENANCE SAFETY INFORMATION

- · Ensure that all safety information is read and understood before maintenance or repair task is performed
- The person who is undertaking the repair or maintenance task must be qualified and competent to complete the task being undertaken
- PPE. Appropriate PPE must be worn including Hi Visibility Clothing, Safety glasses, Protective Footwear, Hand Protection (as required) Hearing Protection (as required), hard hat (as required), Dust Masks (as required).
- Isolation locks, Danger Tags and Out of Service tags MUST be used in accordance with site requirements and machine specific isolation procedure.
- All lifting gear must have current inspection tag, be suitably rated for item being lifted, and be in good condition.
- Lifts requiring mechanical aids must only be conducted by trained and competent personnel.
- When lifting objects with mechanical aid, keep clear of all potential crush or pinch points.
- Keep clear of suspended loads. Use Safety line to control load when required.
- Manual Handling. Do not lift or move objects by hand that are too heavy to do so. When manual handling objects use correct manual handling techniques.
- 8. Pinch Points. Keep all body parts clear of pinch points. Ensure hands and feet are clear when lifting and lowering objects
- Machine support stands. Ensure machine support stands are of suitable capacity and in serviceable condition.
- Slips, trips, falls. Ensure work area is clear of objects that could cause a slip, trip, Fall hazard.
- 11. Warning labels on machine must be observed



12. Prohibition labels on machine must be observed



 Information labels on machine must be observed



14. Service points on machine must be observed



- Climbing on top of machine. Always maintain 3 point contact when climbing on top of machine.
- Hot surfaces. Be aware of hot surfaces when machine has been running.
- Hot fluids. Be aware hot pressurised fluids. This includes engine coolant, hydraulic oil, transmission oil, diesel fuel.
- Chemical injuries: ensure that Material Safety Data Sheets are available and understood for all fluids used on machine.
- Stored energy. Ensure all stored energy has been depleted and raised cylinders supported before conducting repairs or maintenance.
- Accumulator pre-charge pressure. When all stored energy has been depleted the Nitrogen Pressure in the Brake Accumulator is 83 Bar (1,200 psi). DO NOT attempt to release pressure without correct equipment. DO NOT disassemble accumulator without releasing Nitrogen pressure to zero.
- Falling objects. Do not work under unsupported roof or in area where there is risk of falling objects.
- 22. Live Testing: Live testing must only be done after a task specific risk assessment (take 5 or similar) and in accordance with site requirements. The person operating the machine during live testing must be competent to operate the machine.
- Crush points: Ensure that Articulation lock is fitted when conducting maintenance or repairs in crush zones.

- Working under boom: Do not enter under boom unless boom rated, designed for purpose supports have been fitted, boom has been lowered onto supports and machine is isolated.
- 25. Hydraulic injection: Ensure that all stored hydraulic energy has been depleted before disconnecting hydraulic hose or fitting. Do not use your hand to find a hydraulic leak. Use a piece of Cardboard or similar to check for leaks. In the event of a suspected hydraulic injection refer to site specific procedure for fluid injection.
- 26. Compressed air: Ensure air receiver has been isolated before conducting repairs on air system. If working on air receiver the air receiver must be depressurised before commencing work. NOTE: The accumulator on the transmission declutches valve will maintain a small volume of compressed air. Follow instructions on how to remove air accumulator pressure (behind gauge panel) to discharge.
- Current information: Ensure current information is available prior to commencing maintenance or repair task.
- 28. Guards: Ensure all guards and covers removed during maintenance or repairs are replaced prior to starting machine.
- 29. Ventilation Ensure adequate ventilation when testing machine
- Do not conduct electric welding on machine unless the battery has been removed and Alternator disconnected by competent and authorised person.
- 31. Stay clear of rotating parts
- 32. Always use tools that are in good serviceable condition
- Take care to not damage wiring, hydraulic or air lines during repairs and maintenance.
- Ensure all electrical cables are placed in positions away from any possible mechanical damage and away from fuel lines.
- Gas Struts. (used on covers) contain compressed gas even when fully extended. Before removing, check for damage. Damage may cause an uncontrolled release of energy or exploding parts when removing strut.

Document ID: DD-027 Code D2 - Coaltram CT08/10/10LP Section: Coaltram Version: 16-0824 Page 2 of 23





RECOMMENDED COALTRAM MAINTENANCE AND COMPLIANCE SCHEDULE

REF. DOCS. AS3584.3, MDG1

MAINTENANCE EXAMINATION CODE	CALENDER BASED REGIME	ENGINE HOURS REGIME	
CODE A EXAMINATION - Maintenance	DAILY	10	
CODE B EXAMINATION - Maintenance	WEEKLY	50	
CODE C EXAMINATION - Maintenance	MONTHLY	250	
CODE C1 EXAMINATION - Maintenance	3 MONTHLY	500	
CODE C2 EXAMINATION - Maintenance	6 MONTHLY	1000	
CODE D EXAMINATION – Maintenance	YEARLY	2000	
CODE D1 EXAMINATION - Maintenance	2 YEARLY	4000	
CODE D2 EXAMINATION - Maintenance	NOT YEARLY BASED	8000	
COMPLIANCE	OVERHAUL - Mechanical	2 YEARLY	
CODE D MECHANIC Mechanical Compliance Overhauls are recomm and are to be aligned with Mainte	OR as approved by Site Manager using site historica evidence and risk assessments in conjunction with th COALTRAM Agent		
COMPLIANCE	COMPLIANCE OVERHAUL - Electrical		
	CODE D ELECTRICAL COMPLIANCE OVERHAUL Electrical Compliance Overhauls are recommended to be completed by an accredited COALTRAM Agent		



Notes:

- If completing this service in conjunction with a code D, some tasks will be duplicated on the TDES paperwork. There is no requirement for the tasks to be repeated, though, both sets of paperwork should be completed.
- When replacing safety critical components attach tag (5520010495) to identify install date. Tag can be attached with cable tie or suitable adhesive

COALTRAM® ENGINE SYSTEMS

		COMMENTS / RESULTS / ACTIONS
engine hours and record on page 1. Record both MONEx screen and Methane display hours		* This symbol beside an instruction indicates there may be other activities to complete in conjunction with this task in a different area of this document. Eg. When the planetary wheel ends are drained, you need to measure the brake wear before refilling with oil*
remove • covers and guards as required*		
vehicle after fitting wash down cover to MONEx display screen and avoid direct high pressure water on electrical devices. Wash complete engine system and all engine bay areas of excessive coal, dust, oil, mud, and debris accumulated materials from the engine bay in a forward direction away from the radiator check prior to engine removal all running checks in this document that may affect work scope before disabling vehicle bolts mounting engine to cradle remove		Note – The Coaltram Diesel Engine System is modular by design and mounted in a common frame designed to easily remove from the vehicle as a sub assembly. It is recommended to remove this Diesel Engine System from the vehicle chassis to carry out this Code D2 examination.
 the complete diesel engine system from the vehicle > inspect oil leaks engine mounts and bolts starter motor is secure sump security / integrity and corrosion water ingress into engine flywheel housing – remove bottom plug and 		Tensions - • engine mount bolts - 189Nm (139 ft/lbs) Pressures when engine is at operating temperature –
	remove	remove





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COM	AMENTS / RE	SULTS / ACT	IONS
	 engine intake and exhaust valve clearances, adjust as required starter ring gear condition at all points starter motor pinion gear and bearing condition bolts mounting engine to cradle 		Oil Pressu	re (80± 20psi)	- Max Revs _	
	sample					
	oil from engine x 1 for analysis replace			CT08/10/ 10LP with 49"	CT08/10L P with 45" diameter	
	engine oil			diameter	low	
	engine oil filter			tyres and larger	profile tyres only	
	 turbo saviour oil filter engine breather engine breather hose all consumable items including any worn perished or corroded items re-check		RPM	Standard Spec - 13.7 ratio Converte r	Modified Spec - 13.1 ration Converte r	Results
	after running engine		Idle	860-880	860-880	
	 oil level leaks oil pressure> Record result at operating temperature 		Flight	2220± 50	2220± 50	
	 idle, flight and stall rpm > Record result for unusual knocks or noises 		Trans stall	1980± 50	2120± 50	
			Hyd and Trans stall	1730± 50	1800± 50	
Engine Air	replace		,	•	•	
Intake	 air cleaner inner and outer filter elements Intake choker valve assembly if vehicle history shows service life is due – Choker has a 4000 hour recommended service life 					
	 inspect air cleaner restriction indicators x 2 are serviceable and in the correct zone 		Service N	itandard Wor Nanual for de ns. Incorrect	tailed Choke	r test
	system for security and leaks			gine damag		-
	hosing/pipe integrity pix above a pine decept a contract (with an other accordance).					
	 air charge pipe doesn't contact/rub on other components air cleaner housing integrity 					
	 air cleaner nousing integrity test operation of choker/strangler valve as per workplace instructions > 					





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
Cooling	clean		
System	 radiator thoroughly after removing from the engine system. Inspect condition internally and externally by recommended means, repair/replace as required. 		
	replace		
	water pump FRAS V-belt - ensure correct tension after test running for a		
	 short period of time engine cooling fan FRAS V-belts - ensure correct tension after test 		Note – All V-Belts and fan blades must be FRAS rated to comply with U/G coal
	running for a short period of time		regulations
	water pump belt tensioner pulley bearings and seals		
	 upper and lower radiator hoses and clamps 		
	exhaust manifold head bypass hose and clamps		
	 exhaust manifold /water pump bypass hose and clamps engine coolant > 		
	 engine coolain > engine thermostat and gasket 		Recommended to use pre-mixed Caterpilla
	 all ¾, ½ and ¼ engine system cooling hoses with U/G coal mines 		ELC (Extra Long life Coolant) or equivalent.
	approved items		
	 radiator cap with new item – 13psi only 		
	radiator cap neck gasket		
	 inspect radiator cap neck for damage or corrosion and replace as required. 		
	 water pump tell-tale hole for signs of leakage 		
	fan hub and tensioner bearings for excessive movement		
	radiator mounting bolts		
	fan blade condition/integrity		
	fan position in shroud; ensure centralised and correct protrusion 18mm to 22 years of blade protruction in get shroud to words an arise.		
	to 22mm of blade protruding past shroud towards engine for blockages in cores on both sides of the radiator		
	 radiator and pulley guards are in place and secure 		
	 coolant is correct mix - coloured pre-mix > 		Radiator Air flow is measured with a wind
	check coolant is in sight glass on header tank		meter (anemometer) to check for
	radiator air flow (ensure average is within limits/guidelines) >		blockages and/or incorrect fan
	all air is removed from the cooling system after refilling – test at small because at the bighest regists in the system.		position/performance – refer SWP 3.24
	hoses at the highest points in the system system for leaks after new hoses and coolant refill. Pressurise entire		
	system to operating pressure of 13 psi		
	grease		
	fan and idler pulley		
Fuel System	sample		
	fuel from tank x 1 for analysis		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	drain • sediments and potential water from fuel tank drain plug – record any contamination or water in the fuel tank replace • all fuel filters • emergency fuel shut off valve • fuel tank check valve • all fuel hoses inspect		
	 fuel lines for contact on any hot components fuel tank cap and strainer condition fuel gauge level/operation/condition for leaks 		
GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
Pneumatic System	 water/contaminants from air tank clean air charge Y strainer choker flow control valve (item 22 pneumatic schematic) choker application valve (item 21 pneumatic schematic), remove, clean, replace breather and check operation safety circuit pilot valve (item 12A pneumatic circuit), remove, clean, replace breather and check operation additional start valve (item 89 pneumatic circuit), remove, clean, replace breather and check operation relief valve (item 88 pneumatic schematic), remove, clean and check operation cab door interlock valve, remove, clean, replace breather and check operation isolation transmission declutch valve (item 12 pneumatic schematic), remove, clean and check operation transmission declutch valve (item 13 pneumatic schematic), remove, clean, check piston seal, lubricate (valve/o ring grease) and check operation 		
	 inspect leaks on system and repair/report compressor cut out pressure 115-120psi (800–850 kPa) 		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 condition of all hoses and fittings scrubber make up tank pressure – 5-7psi (35-50kPa) safety circuit pressure regulator – 90-100psi (620–690 kPa) – located behind the MONEx display dash panel air compressor delivery fittings internally for any accumulated carbon – replace parts if carbon build up present annual pressure vessel testing is current for the air receiver main isolation valve for leaks when in isolated position replace air compressor delivery hose – ensure it's a genuine braided steel PTFE type filter located inside the primary in-line water trap bowl in the articulation (no oil to be added) air tank relief valve pneumatic check valve on air tank/compressor system sensor manifold air filter located inside the secondary in-line water trap bowl behind the MONEx display dash panel (no oil to be added) Neutral start adaptor O ring 		
Electronic Engine Managemen † System	 check both scrubber water shutdown sensor responses using test buttons – hold in to see the MONEx display to communicate low water. Longer than a few seconds will trigger a shutdown event scrubber water shutdown system via the upper ball valve drain point – isolate supply line and drain to this shutdown level coolant loss operation via test valve engine oil pressure loss via test valve deputy bypass Fob functionality (Red Fob) – this confirms fob reader integrity, and checks non-safety bypasses. Alternatively check reader with latching re-set Fob function (Black Fob) rig throttle function via the MONEx screen, dial up RPM to 1800rpm, switch to engage, ensure engine audible response and rpm represents a hydraulic load is introduced. To check safety cut out, break the pneumatic circuit by individually releasing the park brake, opening the door, and selecting forward or reverse. 		These mechanical inspections do not negate recommended 4 yearly regional and site statutory electrical inspection regimes. Electrical Statutory Inspections must be performed by trained and authorised personnel. Refer separate statutory electrical inspection sheet. Do not apply high pressure water directly on electronic components
	 inspect ECUEx – remove hinged top cover and inspect cable management, foreign ingress and cooling water leaks – reverse flush ECUEx cooling line back into the scrubber make-up tank 		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
GROUP	scrubber level sensor operating linkages and floats condition and integrity of all MONEx electronic components the following for incorrect parts, unauthorised modifications, missing parts/guards/covers, loss of identifying labels, cracks, damage, erosion, corrosion, deterioration, loose items, fatigue and contamination	INITIAL	COMMENTS / RESULTS / ACTIONS
te	 main wiring harness solenoid valves x 3 (isolation, start, rig bolter) control cable (power manager<>sensor/valves) operation of the redundant path watchdog system (if fitted). Refer SWP CT2.24. 		
	 MONEx Fault Log history – manual screen search and record problematic events and/or historic concerns of interest AND/OR 		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	electronic upload and capture of data using the MONEx LRS (Log Retrieval System) > • engine configuration files via ET Tool to capture the engines current electronic signature		Earlier MONEx versions do not have the ability to use the LRS electronic upload
Mechanical Flameproof System	 clean scrubber tank by fully draining at the lower socket to remove built up exhaust residue. If a ball valve is used in this port, a plug must accompany it to comply with safety regulations. scrubber tank internally by hosing out with drain plug removed (use appropriate detergent as required) y-piece strainer in scrubber fill line air inlet flametrap, remove and wash in soapy water, dry with compressed air and fit new gaskets on assembly exhaust catalyst internally (if fitted) Note - Do not use degreaser/solvents or high pressure for cleaning. Soak core with mild detergent (dish soap) and wash in opposite direction of gas flow with low pressure water to remove carbon build up inspect 		Code D mechanical integrity inspections and testing must be carried out by a quality assured, certified and registered company. Ref. AS/NZS 3584.3 Use your local COALTRAM®Agent for this purpose. Note! All parts, gaskets and fasteners relating to the flameproof integrity must be genuine COALTRAM® parts to maintain approval compliance. All flameproof components should be removed from the engine system and inspected to ensure compliance. All fasteners should be
	 scrubber vibration mounts for wear or damage and ensure area is free from debris compliance labels, present, secure and in date all items for integrity, security and damage fasteners on the mechanical flameproof joints turbo mount for looseness or evidence of broken studs inlet system for leaks by spraying joints with soapy water whilst under load at high idle> exhaust system for leaks by spraying joints with soapy water whilst under load at high idle> check for excessive blue exhaust smoke and irritating fumes at varying load and rev ranges add water conditioner to scrubber make up tank (if applicable to site). Note; do not over dose the scrubber water with conditioner scrubber static water level when stopped using the scrubber dipstick drain sediments/contamination from the scrubber make-up tank via the tanks bottom drain plug – remove cap to depressurise first replace scrubber water fill valve seal replace or overhaul turbo charger assembly if vehicle history shows 		replaced with correct parts. Ref. AS/NZS 3584.3 To check intake/exhaust system for leaks operate engine/vehicle when at operating temperature so max turbo boost is achieved. This can be achieved at converter / torque stall. Spray intake joints with soapy water and check for bubbles while under this load. Note - bubbles or exhaust carbon near gaskets/joints indicate bypass/leaks on the exhaust system, bubbles only will appear or air intake leaks.





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	service life – if replaced engrave date of replacement and current engine hours on exhaust section.		
Particulate Filter System (Option 1)	condition, integrity and security of housing /components housing door/lid seal; replace if not sealing scrubber tank spike valve and its operation via removal and bench testing		Note! Replace filters as per site specific procedure – only approved filter elements to be fitted – Microfresh (5520000086) or Cosway (5520010707)
Ceramic Wall-Flow Filter System (CWFF) (Option 2	Inspect Differential & Back Pressure Sensors, Hosing & Fittings Inlet & Outlet Temperature Sensors Safety Isolation Valve x 2 Junction box (Visual) Antenna Calibrate Differential & Back Pressure Sensors (5520011028) Inlet & Outlet Temperature Sensors (5520011029) Remove + Clean Diesel Oxidation Catalyst Replace Differential & Back Pressure Sensors (5520011028) Hosing & Fittings Inlet & Outlet Temperature Sensors (5520011029) Internal sealing gaskets (5520011006) Safety Isolation Valve x 2 (5520001099) Heat Shield Rubber - Turbo Inlet Flange (5520011019) Heat Shield Rubber - Exhaust Manifold (5520011027) Ex Gland, adapters, spigots, conduits, etc (Monitor and Shutdown System, CWFF) (5520011034) Flame Trap - Pressure sensor x 2 Electrical Cables Inner Shell thermal insulation Overhaul HA110 (inc. push button, window, etc)		Filter removal requires opening flameproof joints. Only to be conducted by competent, authorised persons. Ensure new gaskets are available prior to reassembly. Ref. SWP CT 3.53 Flame traps must be cleaned as per OEM recommendations



COALTRAM® VEHICLE SYSTEMS

GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
General	wash entire vehicle thoroughly. Fit wash down cover to MONEx display screen and avoid direct high pressure water on electrical devices inspect steering articulation lock boom safety support locks safety triangles wheel chocks		
Drive Train General	 decals, stickers and warning labels replace all component breathers (transmission, differentials & upbox) all axle retaining bolts > upbox flange inspect integrity of breather hoses/lines security of upbox mounting bolts security of transverter mounts and bolts security of axle mounting bolts and potential movement between housings and frame. Check if 0.2mm feeler gauge can pass between mating faces > differential centre fasteners condition and adjustment of transmission F.N.R selector and gear lever linkages and cables 		Front axle bolts - 633Nm (467ftlb) Rear axle bolts - 366Nm (270ftlb) If feeler gauge passes between faces, remove bolts, lower axle clean mating faces and install new bolts
Drive Train Shafts	 inspect front axle driveshaft universals/slip joint for wear rear axle driveshaft universals/slip joint for wear driveline centre bearings x 2 transverter to centre bearing universals/slip joint for wear upbox / transverter drive shaft universals/slip joint for wear all drive shafts for clearance with hydraulic hoses and cables – through the full steering cycle lock to lock all driveline fasteners, check they are all tight by using appropriate tools 		
Drive Train Lubrication	sample oil from transverter x 1 for analysis oil from differentials x 2 for analysis oil from planetaries x 4 for analysis oil from upbox x 1 for analysis replace		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 transverter oil transverter oil filter both differential oils all four planetary oils upbox oil inspect oil levels after allowing vehicle to stand for 5 minutes after filling transmission oil level with engine idling all four wheel ends/planetary oil levels front and rear differential centre oil levels upbox oil level for oil leaks after test driving hub seals for leaks clean transverter suction screen - record contents if foreign/excessive 		
	 transverter clutch pressures, check using gauge in dash > transmission cooling system rate is sufficient – stall system and heat to approx. 110°C, select neutral and hold at mid-range rpm. Temperature should drop quickly to below 100°C within a few minutes 		Transverter clutch pressures – 240-280 psi All clutch pressures to be within 5psi of each other
Wheels and Tyres	 inspect for loose and missing wheel nuts tyres for damage and record condition and % of tread remaining > tyre pressures with gauge (if pneumatic or air/water filled) > tyre ID labels are in place (e.g. foam filled/solid/ water filled) for compliance labels if pneumatic wheel rim and lock ring for damage/ missing parts tension all wheel nuts 343Nm (253ftlb) 		DSF ODSF DSR ODSR Note! Always refer to tyre manufacturers for specific tyres pressures. Always follow site requirements for tyre inspections. Specs below are general ranges only Air filled - Front 8.0 Bar / 116 psi Air filled - Rear 6.0 Bar / 87 psi
Hydraulic General	inspect condition of all cylinders for oil leaks visually check accessible hydraulic hoses, fittings and components functionality of all hydraulics discolouration or aeration of the oil auxiliary cooling fan condition and system operation		7 New - New 0.0 Bull / 07 psi
	replace		





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	and record all circuit pressure settings >		
	and record all pump flowscylinder piston bypass and cylinder valve operations		
Hydraulic	replace		
Lubrication	steer and brake pressure filters		
Lobilediion	 hydraulic pressure and return filters 		
	hydraulic tank breather		
	 hydraulic oil – check with customer (drain both tanks from bottom drain 		
	points)		
	clean		
	if tanks drained clean both hydraulic tanks internally via the two access		
	covers – wipe out contaminants/sediments with lint free rag		
	 internally placed magnets in the bottom of each tank 		
	inspect		
	after re-starting		
	return filter restriction indicator—if extended and protruding, investigate		
	reason oil level at front swing open tank sight glass with engine stopped		
	 oil level at front swing open tank sight glass with engine stopped oil level at rear main tank sight glass with engine running 		
	 air operated oil fill pump for operation 		
Steering	replace		
System	steer amplifier >		Steer amplifier part #5520004498
2,2.2	steer cylinders >		Steer cylinder part #5520002016
	steer dump valve cartridge and pilot valve		
Braking	inspect		Brake wear results (PASS/FAIL) –
System	all brake hoses/fittings and replace worn or damaged items		505
	 air pilot vent on the park brake dump valve is orientated towards the 		DSF ODSF
	ground		
	multi-disc wet brake wear and record results- use the genuine service		DSR ODSR
	tool only >		
	park brake valve assembly for installation hours, recommendation to park brake valve assembly for installation hours, recommendation to park brake valve assembly for installation hours, recommendation to		
	replace after 4,000 hours		
	air from the brake circuits after replacing hydraulic tank oil		
	test		
	 brake system pressure settings and re-set if required. 		Brake accumulator pressure
	 accumulator nitrogen charge pressure by watching the accumulator 		10.5 -14.5 MPa (+/- 0.2) 1530 - 2100psi (+/- 30)
	charge gauge reading after engine shutdown. When pressure starts to		Brake release pressure
	drop rapidly it needs to be 1200psi ± 50.		9.2-10.3 MPa (+/- 0.2) 1330 - 1495psi (+/- 30)
	operation of primary and secondary brake dump valves by isolating		(1600±50psi following EB18006 upgrade)
	the pilot pressure - brakes should not release with this pilot isolated.		,





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 brake functions using either the NSW MDG39 or QLD Brake Test Form > operation of check valve (item 87 pneumatic schematic) - with engine running, park brake applied and forward or reverse selected, isolate main air to create shutdown. Ensure transmission does not engage and drive against the brake during shutdown. replace service brake foot valve brake check valve brake hoses - item numbers from circuit drawing - 136, 139, 163, 164, 173, 174, 175,176, 177, 179, 233, 265 primary brake dump valve secondary brake dump valve air pilot and cartridge 		Refer site compliance section below
Frame	 inspect all towing, lifting and tie down points integrity of crowd cylinder clevises and bosses all covers, guards, latches and hinges for operation, damage and wear master hitch lock cylinder operation. Check eject/retract direction is correct ROPS/FOPS canopy for security, damage and compliance plate implement /attachment profile with template or against approved GA drawings. master hitch cradle profile with template or against approved GA drawings. security of oscillation/bolster mount bolts bucket tongue fasteners visually for cracks and via NDT / crack testing, the vehicles critical stress points as per vehicle specific drawing> 		NDT drawing CT08/10LP - 5520006489 CT10 - 5520006490 Lift cylinder - CT10 - 5520004484 Crowd Cylinder - CT10 - 5520004486 Lift cylinder DS - CT08 - 5520003189 Lift cylinder ODS - CT08 - 5520003376 Lift cylinder DS - CT10LP - 5520009146
	correct operation and record wear in -		Lift cylinder ODS – CT10LP - 5520009148 Crowd Cylinder – CT08/10LP - 5520003190 QDS lock tongue cylinder – 5520000247 CT08/CT10LP pin and bush kit – 5520009580 CT08/CT10LP front frame split cap bolt kit – 5520009361 CT10 pin and bush kit – 5520009581 CT10 front frame split cap bolt kit – 5520009362





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	all split caps trunnion fasteners on the articulation, boom, cylinders, master hitch and steering >		CT08/10/10LP Common Torque Specifications • Hitch / QDS cap bolt 1480Nm (1092ftlb) • Steer cylinder cap bolt 366Nm (270ftlb) • Articulation cap bolt 633Nm (467ftlb) • Canopy M22 499Nm (368ftlb) • Canopy M30 1253Nm (924ftlb) CT08 Specific Torque Specifications • Crowd cylinder cap bolt 1480Nm (1092ftlb) CT10 Specific Torque Specifications • Lift cylinder cap bolt 633Nm (467ftlb) • Crowd cylinder cap bolt 633Nm (467ftlb) • Boom Pivot cap bolt 1480Nm (1092ftlb) • Z Bar Pivot cap bolt 1562Nm (1152ftlb) • Dog bones cap bolt 1480Nm (1092ftlb)
Vehicle Safety Interlocks	 check door interlock valve is operational - park brake applies when door opened neutral start valve is operational - vehicle will not start in FWD or REV door alarm latch function - when Park Brake is released, partly open door latch for audible horn response hydraulic door interlock valve function - park brake will not release when hydraulic door is opened 		
Cab Section	replace		Joystick part #5520000299 Stick steer valve part # 5520002026
	 inspect gauges are all operational all gauge pressures and temps at operating temperature – record results > seat condition and seat suspension for operation seat base, swivel and mountings for security/integrity all upholstery in cabin horn operation via button on dash 		Coolant Temp Transmission Temp Hydraulic Temp Brake Accum Pressure





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
	 brake gauge is dropping rapidly to zero when service and/or park brake is applied emergency brake operation function by applying park brake while moving slowly service brake operation against full engine power in 2nd gear operation of all hydraulic functions door handle operation pinch point prevention on door master hitch removal function isolates until door mounted twist knob is operated for operational interference around all control levers, brake and accelerator pedals steering operations – wheel and stick steer steering is isolated when park brake is applied steering wheel and spinner condition and operation steering column bearing condition, operation and longitudinal movement remove rubber boot on stick steering lever check integrity, lubricate linkage (valve/o ring grease only) 		Brake Release Pressure Transmission Pressure Eng. Oil Pressure Air Pressure Backpressure
Vehicle Flameproof Electrical Systems	 inspect operation of all lights (including directional lighting if applicable) positioning of light directions/ projections clean light lenses and any other enclosure windows check camera display and directional switching is operational (if applicable) Methane system for damage Fifth light functionality (if fitted) check condition/integrity of following items hosing and cabling installation and mounting areas for potential hazards fastener security alternators mountings and surrounding area for excessive debris. Clean as required > alternator bearings, mounts, drive covers and drive couplings for wear, noise or damage 		These inspections do not negate regional and site statutory electrical inspection regimes. Electrical Statutory Inspections must be performed by trained and authorised personnel. Electrical Flameproof enclosures are recommended to be re-certified every 4 years as a minimum. Code D electrical integrity inspections and testing must be carried out by a quality assured, certified and registered company. Use your local COALTRAM® Agent for this process. Refer separate statutory electrical inspection sheet.





GROUP	MAINTENANCE / COMPLIANCE CHECKS	INITIAL	COMMENTS / RESULTS / ACTIONS
			Note! Do not hose water directly on alternator when at operating temperatures
Manual Greasing	grease		
Autolube System (If Applicable)	inspect		
Fire System – Manual	 check fire extinguisher indicator gauge(s) are in the green zone bottle(s) condition condition of fire extinguisher brackets/clamps tags are fitted and in date on all fire extinguishers 		
Fire Suppression (If Applicable)	 check fire suppression system indicator gauge is in the green zone condition/integrity of fire suppression bottle, lines and nozzles relevant statutory inspections have been completed (system to be tagged/dated) 		
Site Compliance	 check brake test has been carried out as per site regulations gas test has been carried out as per site regulations exhaust gas emissions are within baseline testing specification limits > 		>Refer to the vehicles approval documents for base line gas testing >Test with engine at operating temperature





LUBRICANTS						
COMPONENT	FLUID TYPE	CAPACITY				
ENGINE	SAE 15W40	30L				
RADIATOR/ENGINE	PRE-MIX 100% SAE COOLANT	68L - FILL VERY SLOWLY, BLEED AIR FROM EXHAUST COOLING LINES				
UP BOX	90W	2L – FILL VERY SLOWLY				
TRANSVERTER/TRANSMISSION	10W/30	25L – CHECK WITH ENGINE RUNNING				
DIFFERENTIALS	85W140	18L EACH				
PLANETARIES	85W140	3.7L EACH				
HYDRAULIC TANK	10W/30 – WET BRAKE COMPLIANT	160L – CHECK MAIN REAR TANK LEVEL WITH ENGINE RUNNING, AND FRONT TANK WITH ENGINE STOPPED				





FILTERS AND SERVICE ITEM PART NUMBERS			MAINTENANCE INTERVAL REQUIREME	NTS
DESCRIPTION	PART NUMBER	QTY		CODE D2
SERVICE KIT PART NUMBER				5520001776
FILTERS				4 yearly / 8000hr
Air Filter (Outer)	5520000240	1		•
Engine Oil Filter	5520000494	1		•
Turbo Saviour Filter	5520000177	1		•
Fuel Filter – Primary Water Separator	5520000648	1		•
Fuel Filter – Secondary	5520001765	1		•
Transverter Filter	5520001237	1		•
Transverter Filter Housing O Ring	9236201751	1		•
Air Filter (Inner)	5520000241	1		•
Hydraulic Steer Filter – Pressure	5520010556	1		•
Hydraulic Brake Filter – Pressure	5520000278	1		•
Hydraulic Return Filter	5541300800	1		•
Hydraulic Steer Filter O Ring	5520002217	1		•
Hydraulic Brake Filter O Ring	5520002218	1		•
Hydraulic Return Filter O Ring	5520002219	1		•
Hydraulic Return Filter O Ring	5520009059	1		•
Sensor Manifold Air Filter Element	5520010490	1		•
PARTS				
SOS Sample Bottle	5520001865	11		•
Engine Breather Assembly	5520000214	1		•
Engine Breather O Ring	5520000217	1		•
Fan Belts 168kw	5520000350	2		•





FILTERS AND SERVICE ITEM PART NUMBERS		MAINTENANCE INTERVAL REQUIREMENTS			
DESCRIPTION	PART NUMBER	QTY	CODE D2		
Water Pump Belt	5520000384	1	•		
Flametrap Gasket	5520000093	2	•		
Transverter Screen Gasket	5533358300	1	•		
Diff Breather	5534307200	2	•		
Upbox Breather	5534307200	1	•		
Transverter Breather	5541501500	1	•		
Hydraulic Tank Breather	5537168400	1	•		
Differential Breather	5540589400	2	•		
Differential Breather	5537885300	2	•		
Air Compressor Breather	5534307200	1	•		
Driveline Centre Bearing Breather	5532823700	1	•		
Brake Wear Indicator Tool	5520000387	1	•		
Water Pump Tensioner Pulley Bearing	5520000037	2	•		
Water Pump Tensioner Pulley Seals	5520009346	2	•		
Coolant	5520000644	80L	•		
Thermostat (Regulator)	5520001984	2	•		
Thermostat Gasket	5520000390	1	•		
Tappet Cover Gasket	5520000211	2	•		
Compressor Delivery Hose	5520000427	1	•		
Air Tank Check Valve	5520000174	1	•		
Air Tank Relief Valve	5520000150	1	•		
Air Separator Filter Element	5520001864	1	•		
Radiator Hose - Upper	5520001233	2	•		
Radiator Hose Clamp	5520000454	4	•		
Radiator Hose – Lower ODS	5520001232	1	•		
Radiator Hose – Lower DS	5520001686	1	•		
Hose Clamp – Suit Lower Hoses	5520000659	4	•		
Exhaust Manifold Head Bypass Hose	5520001234	1	•		
Exhaust Manifold Water Pump Bypass Hose	5520001235	1	•		
Hose Clamp – Suit Bypass Hoses	5520001703	4	•		
Manual Fuel Isolation Valve	5520000430	1	•		
Scrubber Water Supply Valve Seal	5520000061	1	•		
Turbo Charger Assembly	5520001754NFO	1	•		
Choker Actuator Assembly	5520003333	1	•		
Radiator Cap – 13 psi	5520000386	1	•		
Radiator Neck Gasket	5520000104	1	•		
Fuel tank check valve	5520000172	1	•		
Brake Check Valve	5520000229	1	•		





FILTERS AND SERVICE ITEM PART NUMBERS			MAINTENANCE INTERVAL REQUIREMENTS	
DESCRIPTION	PART NUMBER	QTY		CODE D2
Hose 136	5520001389	1		•
Hose 139	5520001392	1		•
Hose 163	5520001416	1		•
Hose 164	5520001417	1		•
Hose 173	5520001426	1		•
Hose 174	5520001427	1		•
Hose 175	5520001428	1		•
Hose 176	5520001429	1		•
Hose 177	5520001430	1		•
Hose 179	5520001432	1		•
Hose 233	5520001486	1		•
Hose 265	5520002027	1		•
Service Brake Foot Valve	5580003985	1		•
MONEx Main Harness	5520001218	1		•
Solenoid Valves	5520000592	3		•
Control cable (pwr mgr<>sensors/valves)	5520002073	1		•
Secondary brake dump valve & steer dump valve cartridge	5520000318	2		•
Secondary brake dump pilot valve	5520002159	1		•
Steer dump pilot valve	5520002152	1		•
Neutral start adaptor o ring	5520001103	1		•
Primary brake dump valve	5520000167	1		•
Upbox flange	5580005619	1		•
Master hitch release valve	5520002021	1		•

Additional Parts not included in service kit

DESCRIPTION	PART NUMBER	QTY
Main Hydraulic Control Joystick	5520000299	1
Steer amplifier valve	5520004498	1
Steer cylinder	5520002016	2
Park brake valve	5520000166	1
Stick steer valve	5520002026	1
Radiator Cap Neck	5520000698	1
Water Pump Belt (Relocated Tensioner)	5520011040	1
Autolube grease cartridge 450gm	5520001696	2
CT08/CT10LP front frame split cap bolt kit	5520009361	1
CT10 front frame split cap bolt kit	5520009362	1
Engine breather hose	5520001806	1



Axle retaining bolts

CT10	PART NUMBER	QTY
Front axle bolts	5541092300	8
Front axle washers	5540112900	14
Front axle nuts	0291112844	6
Rear axle bolts	5540417700	16
Rear axle washers	5540112800	32
Rear axle nuts	0291112843	16
CT08/CT10LP		
Front axle bolts	5541092300	8
Front axle bolts	5541067700	8
Front axle washers	5520000056	32
Front axle nuts	029112844	16
Rear axle bolts	5540417700	16
Rear axle washers	5540112800	32
Rear axle nuts	0291112843	16

Ceramic Wall-Flow Filter System (CWFF) (if fitted)

DESCRIPTION	PART NUMBER	QTY
Safety Isolation Valve	5520000592	2
Filter Element	5520010930	1
Heat Shield Rubber – Turbo Inlet Flange	5520011019	1
Heat Shield Rubber – Exhaust Manifold	5520011027	1
Thermal Insulation around Inner Shell	5520011007	1
Water Pump Belt (Relocated Tensioner)	5520011040	1
Gasket – Intake cone to flametrap /Flametrap to inlet manifold	5520011005	2
Gasket – CWF inner shell to downpipe	5520011004	1
Gasket – CWF element internal	5520011006	2
Flame Trap – Pressure sensor (PPK-E Version)	5520011038	2*
Flame Trap – Pressure sensor (SICK Version)	5520011037	2*