

BRITISH RAILWAYS

**WORKSHOP OVERHAUL SCHEDULE**

DIESEL MULTIPLE UNITS

ANCILLARY TRACTION EQUIPMENT

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DIESEL MULTIPLE UNITS

ANCILLARY TRACTION EQUIPMENT.

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ASSOCIATED SCHEDULES

ENGINES (INCLUDING FLUID COUPLINGS, TORQUE CONVERTORS, FREE WHEELS & AIR COMPRESSORS)

1. AEC/LEYLAND 150/200 hp
2. ROLLS ROYCE 180/238 hp

GEARBOXES AND FINAL DRIVES (INCLUDING CARDAN SHAFTS)

ELECTRICAL CONTROL SYSTEM.



WORK

COMPONENT	WORK TO BE CARRIED OUT	REMARKS
<u>Fuel Filters</u>	Remove elements. Clean and examine casings for fractures. Fit new elements and renew all sealing washers. Ensure filter caps are tight and not distorted on re-assembly. Check that bleed screws are oil-tight.	
<u>Lubricating Oil Pipework, Clips and Connections.</u>	Examine pipework for mechanical damage and security of clips, repair or renew as necessary. Thoroughly clean all pipes internally. Ensure that pipe connections are secure and oil tight.	When fitting new flexible hoses, it is of the utmost importance to ensure that they are of the correct grade and length, and that when fitted there is no kinking. In addition all flexibles must be so positioned that there is no chance of rubbing on mechanical details which could lead to eventual failure.
<u>Oil Separator</u>	Remove oil separator, withdraw filter and baffle plate assembly. Clean filter baffle plate and housing. Examine filler cap. Renew spring and seal as required. Re-assemble unit. Oil supply and return pipe connections and breather to be sealed during storage.	
<u>Cooling System Pipework, Clips and Connections.</u>	Examine pipework for mechanical damage and security of clips. Repair or renew as necessary. Renew all flexible hoses whenever engine or coolant group is removed from railcar. When pipework is dismantled, examine flanges and re-surface as necessary. Thoroughly clean all pipes internally. All pipe ends to be sealed during storage. All flange joints to be renewed on assembly. Pipework to be painted in specified colour (blue).	The fitting of new hoses must be in accordance with Standing Order No. T.& R.S./W/LG/6. It is of the utmost importance that hoses are of the correct grade and length, and that when fitted there is no kinking. In addition all flexibles must be so positioned that there is no chance of rubbing on mechanical details which could lead to eventual failure.

COMPONENT	WORK TO BE CARRIED OUT	REMARKS
<u>Radiator and Fan Unit (150 h.p., Leyland and A.E.C. Engined Cars).</u>	<p>Remove from vehicle, strip, clean and examine.  Renew fan bearings, ensuring that they are a tight fit  in fan housing. Examine fan spindle for concentricity  and renew as necessary.  Repair or renew other fan components as necessary.  Check fan for balance before refitting.  Fit reconditioned drain cock, repair or renew cock  removed as necessary.  Check clearance between fan housing and casing.  Clean and examine radiator elements and ensure that  they are not blocked, renew as necessary.  Renew seals, and polish and roll ends of elements.  Remove and clean upper and lower tanks, repair or renew  as necessary.  Renew all joints.  Reconditioned unit to be given hydraulic pressure test.</p>	<p>See Data Section Item 2.   See Data Section Item 2.   See Data Section Item 2.</p>
<u>Radiator and Fan Unit (Serck)</u>	<p>Remove from vehicle, strip, clean and examine. Ensure that  air passages are clear.  Renew fan bearings, ensuring that they are a tight fit  in fan housing. Examine fan spindle for concentricity  and renew as necessary.  Renew defective fan blade rivets.  Repair or renew other fan components as necessary.  Check fan for balance before refitting.  Check clearance between fan and casing.  Clean and examine radiator element group and ensure  that no elements are blocked.  Pressure test radiator elements for leaks, repair or  seal off elements as necessary.</p>	<p>See Data Section Item 2.  See Data Section Item 2.   See Data Section Item 2.</p>

C4 REPAIRS

COMPONENT	WORK TO BE CARRIED OUT	REMARKS
Radiator and Fan Unit (Coventry - fitted to 8 cyl. Rolls Royce)	Remove from vehicle, strip, clean and examine. Ensure that air passages are clear, in both element blocks.	
	Renew fan bearings, ensuring that they are a tight fit in the fan housing. Examine fan spindle for concentricity and renew as necessary.	
	Renew defective fan blade rivets.	
	Repair or renew other fan components as necessary.	
	Check fan for balance before refitting.	See Data Section Item 2
	Check clearance between fan and casing.	See Data Section Item 2
	Clean and examine radiator element group and ensure that no elements are blocked.	
	Pressure test radiator elements for leaks, repair or seal off elements as necessary.	See Data Section Item 2

NOTE: All tolerances, limits and fits are laid down in Data Section.

C4 REPAIRS

COMPONENT	WORK TO BE CARRIED OUT	REMARKS
Radiator and Fan Unit (Coventry - fitted to 6 cyl. Rolls Royce)	Remove from vehicle, strip, clean and examine. Ensure that air passages are clear.	
	Renew fan bearings, ensuring that they are a tight fit in fan housing. Examine fan spindle for concentricity and renew as necessary.	
	Renew defective fan blade rivets.	
	Repair or renew other fan components as necessary.	
	Check fan for balance before refitting.	See Data Section Item 2.
	Check clearance between fan and casing.	See Data Section Item 2.
	Clean and examine radiator element group and ensure that no elements are blocked.	
Pressure test radiator elements for leaks, repairs or seal off elements as necessary.	See Data Section Item 2	

NOTE : All tolerances, limits and fits are laid down in Data Section.

COMPONENT	WORK TO BE CARRIED OUT	REMARKS
<u>Air Pipework</u>	Examine for mechanical damage and security of clips. Repair or renew as necessary. Blow out pipes with compressed air. Ensure that all pipe connections are satisfactory.	
<u>Air Filters.</u>	Remove and clean. Ensure that filter casings and elements are sound, and clipping and fixing details are in good condition, repair or renew as necessary. Repair or renew anti-freeze unit as necessary.	
<u>Air Jumper Flexible Connections</u>	Remove from vehicle. Renew flexible hose and repair or renew connections as necessary.	
<u>Air Pressure Gauge.</u>	Remove from vehicle and fit reconditioned gauge. Strip, clean and examine displaced gauge, repair as necessary. After final assembly, calibrate gauge against a master gauge.	During changing of gauge, ensure that joints washer (pipe to gauge) is removed and correctly refitted, and that no undue strain is placed on pipework during coupling of gauge to pipework.
<u>Gearbox Throttle Orifice.</u>	Remove, clean and examine; repair as necessary.	
<u>Non-Return Valve.</u>	Remove and fit new or reconditioned unit. Strip, clean, examine and repair as necessary the valve displaced. Renew spring.	



COMPONENT	WORK TO BE CARRIED OUT	REMARKS
<u>Engine Mounting Links</u>	Clean and examine for defects. Repair as necessary.	
<u>Engine Exhaust Silencer</u>	Remove from vehicle. Check retaining clips. Renew silencer if holed, or repack if empty.	
<u>Engine Exhaust Pipes (Rigid and Flexible)</u>	Renew exhaust pipes and exhaust joints. (See Remarks) Ensure that slip joints have a minimum overlap of 3 in. and that pipe clips are secure.	Renew pipes on condition where they are manufactured from thicker material than 16 gauge.
<u>Throttle Motors (except RR)</u>	Remove from vehicle and fit reconditioned unit. Strip, clean and examine displaced unit. Renew plunger bushes and washers. Check actuating lever for condition, renew as necessary. Remove shaft, clean and examine, repair or renew as necessary. Renew bushes and keys. Renew oil nipples, joints and springs. Repair or renew stops and non-return valve as necessary.	
<u>Hand Throttle.</u>	Repair or renew as necessary.	
<u>Engine Air Cleaner.</u>	Remove from vehicle. Strip, clean and examine and renew felt washers (where fitted).	
<u>Gearbox Mounting Brackets.</u>	Clean and examine for defects. Repair as necessary. If gearbox is changed, bolts and mounting rubbers to be renewed. Displaced bolts to be physically scrapped.	See Data Section Item 4.
<u>Mileometers</u>	Remove from vehicle and fit reconditioned units. Strip, clean and examine displaced units, repair as necessary. Return to a zero reading. Reconditioned units to be bench tested and recalibrated.	

COMPONENT	WORK TO BE CARRIED OUT	REMARKS
<u>Fuel Filters</u>	Remove elements. Clean and examine casings for fractures. Fit new elements and renew all sealing washers. Ensure filter caps are tight and not distorted on re-assembly.. Check that bleed screws are oil-tight	
<u>Lubricating Oil Pipework, Clips and Connections.</u>	Examine pipework for mechanical damage and security of clips, repair or renew as necessary. Thoroughly clean all pipes internally. Ensure that pipe connections are secure and oil tight.	When fitting new flexible hoses, it is of the utmost importance to ensure that they are of the correct grade and length, and that when fitted there is no kinking. In addition, all flexibles must be so positioned that there is no chance of rubbing on mechanical details which could lead to eventual failure.
<u>Oil Separator</u>	Remove oil separator, withdraw filter and baffle plate assembly. Clean filter baffle plate and housing. Examine filter cap. Renew spring and seal as required. Re-assemble unit. Oil supply and return pipe connections and breather to be sealed during storage.	
<u>Cooling System Pipework, Clips and Connections.</u>	Examine pipework for mechanical damage and security of clips. Repair or renew as necessary. Renew all flexible hoses whenever engine or coolant group is removed from rail-car. When pipework is dismantled, examine flanges and re-surface as necessary. Thoroughly clean all pipes internally. All pipe ends to be sealed during storage. All flange joints to be renewed on assembly. Pipework to be painted in specified colour (blue).	The fitting of new hoses must be in accordance with Standing Order No. T.& R.S./W/LG/6. It is of the utmost importance that hoses are of the correct grade and length, and that when fitted there is no kinking. In addition all flexibles must be so positioned that there is no chance of rubbing on mechanical details which could lead to eventual failure.



COMPONENT	WORK TO BE CARRIED OUT	REMARKS
Radiator and Fan Unit (Coventry - fitted to 8 cyl. Rolls Royce)	Remove from vehicle, strip, clean and examine. Ensure that air passages are clear, in both element blocks.	
	Renew fan bearings, ensuring that they are a tight fit in the fan housing. Examine fan spindle for concentricity and renew as necessary.	
	Renew defective fan blade rivets.	
	Repair or renew other fan components as necessary.	
	Check fan for balance before refitting.	See Data Section Item 2.
	Check clearance between fan and casing.	See Data Section Item 2.
	Clean and examine radiator element group and ensure that no elements are blocked.	
Pressure test radiator elements for leaks, repair or seal off elements as necessary.	See Data Section Item 2	

NOTE : All tolerances, limits and fits are laid down in Data Section.

C3 REPAIRS

COMPONENT	WORK TO BE CARRIED OUT	REMARKS
Radiator and Fan Unit (Coventry - fitted to 6 cyl. Rolls Royce)	Remove from vehicle, strip, clean and examine. Ensure that air passages are clear.	
	Renew fan bearings, ensuring that they are a tight fit in fan housing. Examine fan spindle for concentricity and renew as necessary.	
	Renew defective fan blade rivets.	
	Repair or renew other fan components as necessary.	
	Check fan for balance before refitting.	See Data Section Item 2
	Check clearance between fan and casing.	See Data Section Item 2
	Clean and examine radiator element group and ensure that no elements are blocked.	
Pressure test radiator elements for leaks, repairs or seal off elements as necessary.	See Data Section Item 2	

NOTE: All tolerances, limits and fits are laid down in Data Section.

COMPONENT	WORK TO BE CARRIED OUT	REMARKS
<u>AIR SYSTEM</u> <u>Air Pipework</u>	Examine for mechanical damage and security of clips. Repair or renew as necessary. Blow out pipes with compressed air. Ensure that all pipe connections are satisfactory.	
<u>Air Filters.</u>	Remove and clean. Ensure that filter casings and elements are sound, and clipping and fixing details are in good condition, repair or renew as necessary. Repair or renew anti-freeze unit as necessary.	
<u>Air Reducing Valve.</u>	Remove from vehicle and fit reconditioned valve. Strip, clean and examine displaced valve. Renew filter, piston rubber seal and reaction valve assembly (including valve inlet spring, conical inlet valve and disc type release valve). Examine main control and control piston spring, renew as necessary. Examine piston and piston guide for signs of damage or scoring, repair or renew as necessary. Reconditioned valve to be bench tested.	See Data Section Item 3. See Data Section Item 3. See Test Specification No. A/2.

COMPONENT	WORK TO BE CARRIED OUT	REMARKS
<u>AIR SYSTEM (Continued)</u>		
<u>Unloader and Safety Valve.</u>	Remove from vehicle and strip, clean and examine; repair as necessary. Renew springs. Reconditioned valves to be bench tested before refitting to vehicle.	See Test Specification No. A/4 for unloader valves and Data Section Item 3 for Safety valves.
<u>All Other Air Valves and Cocks</u>	Remove from vehicle and fit reconditioned unit. Repair displaced cocks as necessary. Strip, clean and examine displaced valves. Check seating and diaphragms for condition. Renew diaphragms if there are any signs of deterioration. Recondition or renew seatings as necessary. Check operation and calibrate operating pressures of valves.	See Data Section Item 3.
<u>Air Jumper Flexible Connections.</u>	Remove from vehicle. Renew flexible hose. Repair or renew connections as necessary.	
<u>Air Pressure Gauge.</u>	Remove from vehicle and fit reconditioned gauge. Strip, clean and examine displaced gauge, repair as necessary. After final assembly, calibrate gauge against a master gauge.	During changing of gauge, ensure that jointing washer (pipe to gauge) is removed and correctly refitted, and that no undue strain is placed on pipework during coupling of gauge to pipework.
<u>Gearbox Throttle Orifice.</u>	Remove, clean and examine; repair as necessary.	
<u>Non-Return Valve.</u>	Remove and fit new or reconditioned unit. Strip, clean, examine and repair as necessary the valve displaced. Renew spring.	

COMPONENT	WORK TO BE CARRIED OUT	REMARKS
<u>MISCELLANEOUS COMPONENTS</u>		
<u>Engine Mounting Links</u>	Clean and examine for defects. Repair as necessary.	
<u>Engine Exhaust Silencer</u>	Remove from vehicle. Check retaining clips. Renew silencer if holed, or repack if empty.	
<u>Engine Exhaust Pipes (Rigid and Flexible)</u>	Renew exhaust pipes and exhaust joints. (See Remarks) Ensure that slip joints have a minimum overlap of 3 in. and that pipe clips are secure.	Renew pipes on condition where they are manufactured from thicker material than 16 gauge.
<u>Throttle Motors. (except RR)</u>	Remove from vehicle and fit reconditioned unit. Strip, clean and examine displaced unit. Renew plunger bushes and washers. Check actuating lever for condition, renew as necessary. Remove shaft, clean and examine, repair or renew as necessary. Renew bushes and keys. Renew oil nipples, joints and springs. Repair or renew stops and non-return valve as necessary.	
<u>Hand Throttle</u>	Repair or renew as necessary.	
<u>Engine Air Cleaner.</u>	Remove from vehicle, Strip, clean and examine and renew felt washers (where fitted).	



COMPONENT	WORK TO BE CARRIED OUT	REMARKS
<u>FUEL SYSTEM (EXTERNAL TO ENGINE)</u>		
<u>Pipework, Clips and Connections</u>	Examine pipework for mechanical damage and security of clips, repair or renew as necessary. Renew all flexible hoses.	Ensure that flexible hoses are to the correct specification and pipe clips are of the correct type.
	When pipework is dismantled, all flange joints to be renewed on reassembly. Thoroughly clean all pipes internally. After cleaning of solid pipes, examine flanges and resurface as necessary. Clean pipes internally again if flanges resurfaced. Repaint pipework to specified colour (brown). All pipe ends to be sealed during storage. Remove filler cap and renew seal and grommet, repair filler as necessary. Ensure that the clipping detail is satisfactory.	
<u>Valves, Cocks and Non-Return Valves.</u>	Remove and fit reconditioned units. Recondition displaced units as necessary. Ensure all operating handles are fitted in the correct position on valves and cocks, and are secure. Reconditioned units to be functionally tested after repair. All open ports to be sealed during storage.	

COMPONENT	WORK TO BE CARRIED OUT	REMARKS
<u>Gearbox Mounting Brackets</u>	Clean and examine for defects. Repair as necessary. If gearbox is changed, bolts and mounting rubbers to be renewed. Displaced bolts to be physically scrapped.	See Data Section Item 3.
<u>Mileometers</u>	Remove from vehicle and fit reconditioned units. Strip, clean and examine displaced units, repair as necessary. Return to a zero reading. Reconditioned units to be bench tested and recalibrated.	

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COMPONENT	WORK TO BE CARRIED OUT	REMARKS
<u>FUEL SYSTEM (EXTERNAL TO ENGINE)</u>		
<u>Pipework, Clips and Connections</u>	<p>Examine pipework for mechanical damage and security of clips. Repair or renew as necessary. Renew all flexible hoses.</p> <p>When pipework is dismantled, examine flanges and re-surface if necessary. Thoroughly clean all pipes internally. All flange joints to be renewed on re-assembly.</p> <p>Repaint pipework to specified colour (brown). All pipe ends to be sealed during storage. Ensure that the clipping detail is satisfactory.</p>	<p>Ensure that flexible hoses are to the correct specification and pipe clips are of the correct type.</p>
<u>Valves, Cocks and Non-Return Valves.</u>	<p>Remove and fit reconditioned units. Recondition displaced units as necessary. Ensure all operating handles are fitted in the correct position on valves and cocks, and are secure. Reconditioned units to be functionally tested after repair. All open ports to be sealed during storage.</p>	
<u>Fuel Tanks and Header Tanks.</u>	<p>Remove from vehicle where possible and clean. Examine for leaks, signs of corrosion and damage. Repair or renew as necessary. Remove filler cap. Renew seal and grommet. Repair as necessary. Remove pressure relief valve from main fuel tank and fit reconditioned valve. Repair or renew displaced valve as necessary.</p>	

COMPONENT	WORK TO BE CARRIED OUT	REMARKS
<u>FUEL SYSTEM (EXTERNAL TO ENGINE)</u> (Continued).		
<u>Fuel Tank Contents Gauge</u>	Remove from fuel tank and fit reconditioned gauge. Repair or renew displaced gauge as necessary.	
<u>Fuel Filters.</u>	Remove elements. Clean and examine casings for fractures. Fit new elements and renew all sealing washers. Ensure filter caps are tight and not distorted on re-assembly. Check that bleed-screws are oil tight.	
<u>Lubricating Oil Pipework, Clips and Connections.</u>	Examine pipework for mechanical damage and security of clips, repair or renew as necessary. Thoroughly clean all pipes internally. Ensure that pipe connections are secure and oil-tight.	When fitting new flexible hoses, it is of the utmost importance to ensure that they are of the correct grade and length, and that when fitted there is no kinking. In addition, all flexibles must be so positioned that there is no chance of rubbing on mechanical details which could lead to eventual failure.
<u>Oil Separator</u>	Remove oil separator. Withdraw filter and baffle plate assembly. Clean baffle plate, filter and housing. Examine filler cap. Renew seal and spring as required. Re-assemble unit. Oil supply and return pipe connections and breather to be sealed during storage.	

COMPONENT	WORK TO BE CARRIED OUT	REMARKS
<u>COOLING SYSTEM (EXTERNAL TO ENGINE)</u>		
<u>Pipework, Clips and Connections</u>	Examine pipework for mechanical damage and security of clips. Repair or renew as necessary. Renew all flexible hoses whenever engine or coolant group is removed from railcar. When pipework is dismantled, examine flanges and re-surface if necessary. Thoroughly clean all pipes internally. All pipe ends to be sealed during storage. All flange joints to be renewed on assembly. Pipework to be painted specified colour (blue).	When fitting new flexible hoses, it is of the utmost importance to ensure that they are of the correct grade and length, and that when fitted there is no kinking. In addition, all flexibles must be so positioned that there is no chance of rubbing on mechanical details which could lead to eventual failure.
<u>Valve and Cocks.</u>	Remove and fit reconditioned units. Recondition displaced units as necessary. Ensure that all operating handles are fitted in the correct position on valves and cocks, and are secure. Reconditioned units to be functionally tested after repair.	
<u>Coolant Header Tank.</u>	Remove from vehicle, clean and examine for leaks, signs of corrosion and damage; repair or renew as necessary. Renew pressure relief valve (where fitted). Remove filler cap and renew seal and grommet, repair filler as necessary. Ensure that clip, where fitted, is satisfactory. Repair or renew fixing frame, where fitted, as necessary. On pressurised systems, carry out pressure test.	

COMPONENT	WORK TO BE CARRIED OUT	REMARKS
<u>COOLING SYSTEM (EXTERNAL TO ENGINE) (Continued)</u>		
<u>Radiator and Fan Unit (150 h.p., Leyland and A.E.C. Engined Cars).</u>	<p>Remove from vehicle, strip, clean and examine.            Renew fan bearings, ensuring that they are a tight fit            in fan housing. Examine fan spindle for concentricity            and renew as necessary.            Repair or renew other fan components as necessary.            Check fan for balance before refitting.            Fit reconditioned drain cock, repair or renew            cock removed as necessary.            Check clearance between fan housing and casing.            Clean and examine radiator elements and ensure that            they are not blocked, renew as necessary.            Renew seals, and polish and roll ends of elements.            Remove and clean upper and lower tanks, repair or renew            as necessary.            Renew all joints.            Reconditioned unit to be given hydraulic pressure test.</p>	<p>See Data Section Item 2.             See Data Section Item 2.             See Data Section Item 2.</p>
<u>Radiator and Fan Unit (Serck)</u>	<p>Remove from vehicle, strip, clean and examine. Ensure            that air passages are clear.            Renew fan bearings, ensuring that they are a tight fit in            fan housing. Examine fan spindle for concentricity and            renew as necessary.            Renew defective fan blade rivets.            Repair or renew other fan components as necessary.            Check fan for balance before refitting.            Check clearance between fan housing and casing.            Clean and examine radiator element group and ensure that            no elements are blocked.            Pressure test radiator elements for leaks, repair or seal            off elements as necessary.</p>	<p>See Data Section Item 2.            See Data Section Item 2.             See Data Section Item 2.</p>

C1 and C2 REPAIRS

COMPONENT	WORK TO BE CARRIED OUT	REMARKS
Radiator and Fan Unit (Coventry - fitted to 8 cyl. Rolls Royce)	Remove from vehicle, strip, clean and examine. Ensure that air passages are clear, in both element blocks.	
	Renew fan bearings, ensuring that they are a tight fit in the fan housing. Examine fan spindle for concentricity and renew as necessary.	
	Renew defective fan blade rivets.	
	Repair or renew other fan components as necessary.	
	Check fan for balance before refitting.	See Data Section Item 2
	Check clearance between fan and casing.	See Data Section Item 2
	Clean and examine radiator element group and ensure that no elements are blocked.	
	Pressure test radiator elements for leaks, repair or seal off elements as necessary.	See Data Section Item 2

NOTE: All tolerances, limits and fits are laid down in Data Section.

COMPONENT	WORK TO BE CARRIED OUT	REMARKS
Radiator and Fan Unit (Coventry - fitted to 6 cyl. Rolls Royce)	Remove from vehicle, strip, clean and examine. Ensure that air passages are clear.	
	Renew fan bearings, ensuring that they are a tight fit in fan housing. Examine fan spindle for concentricity and renew as necessary.	
	Renew defective fan blade rivets.	
	Repair or renew other fan components as necessary.	
	Check fan for balance before refitting.	See Data Section Item 2
	Check clearance between fan and casing.	See Data Section Item 2
	Clean and examine radiator element group and ensure that no elements are blocked.	
Pressure test radiator elements for leaks, repairs or seal off elements as necessary.	See Data Section Item 2	

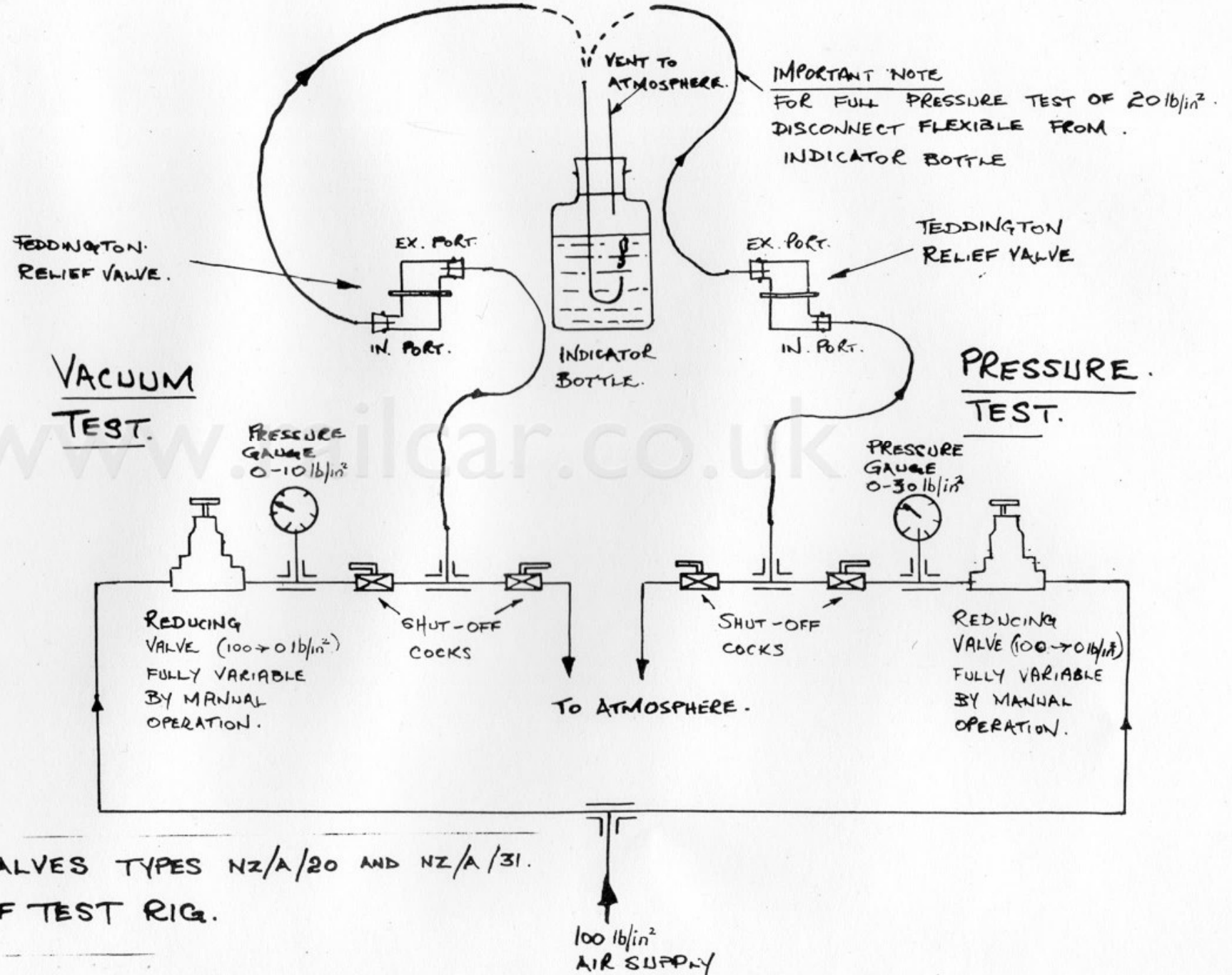
NOTE: All tolerances, limits and fits are laid down in Data Section.



C1 & C2 REPAIRS OR WHEN HEADER TANKS ARE REMOVED.

COMPONENT	WORK TO BE CARRIED OUT	REMARKS
<u>COOLING SYSTEM (EXTERNAL TO ENGINE)</u>		
<u>COOLANT HEADER TANK</u>	<p>Remove from vehicle, clean and examine for leaks, signs of corrosion and damage; repair and renew as necessary. Renew pressure relief valve (where fitted).</p> <p>Remove filler cap and renew seal and grommet, repair filler as necessary. Ensure that clip, where fitted is satisfactory.</p> <p>Repair or renew fixing frame, where fitted, as necessary.</p> <p>On pressurised systems, carry out pressure test.</p>	
<u>TEDDINGTON RELIEF VALVE</u>	<p>Strip displaced pressure relief valve and clean all parts.</p> <p>Examine the bellows for cracks and damage; renew as necessary.</p> <p>Examine valve knife edge on the bellows and if damaged renew.</p> <p>Examine composition valve seat; if badly pitted renew the valve seat assembly.</p> <p>Examine valve spring for defects and length, renew as required.</p> <p>Carry out operational test.</p>	<p><u>Note</u> It is not possible to renew the composition valve seat itself.</p> <p>See Dato Section Item 5.</p> <p>See Dato Section Item 5.</p>

NOTE: ALL TOLERANCES, LIMITS AND FITS ARE LAID DOWN IN DATA SECTION.



TEDDINGTON RELIEF VALVES TYPES NZ/A/20 AND NZ/A/31.  
SCHEMATIC LAYOUT OF TEST RIG.

NOTE: All tolerances, Limits and fits are laid down in the Data Section.

COMPONENT	WORK TO BE CARRIED OUT	REMARKS
<u>AIR SYSTEM</u>		
<u>Air Pipework</u>	Examine for mechanical damage and security of clips. Repair or renew as necessary. Blow out pipes with compressed air. Ensure that all pipe connections are satisfactory.	
<u>Air Hoses</u>	Renew all air hoses, ensuring that they are to the correct specification.	
<u>Air Reservoirs</u>	Remove, clean and examine for signs of damage and internal scaling; repair or renew as necessary. Pressure test reservoirs before refitting. Examine fixing straps and repair as necessary.	See Standing Order No. T.& R.S./W/G/4.
<u>Air Filters.</u>	Remove and clean. Ensure that filter casings and elements are sound, and clipping and fixing details are in good condition, repair or renew as necessary. Repair or renew anti-freeze unit as necessary.	
<u>Air Reducing Valve.</u>	Remove from vehicle and fit reconditioned valve. Strip, clean and examine displaced valve. Renew filter, piston rubber seal and reaction valve assembly (including valve inlet spring, conical inlet valve and disc type release valve). Examine main control and control piston spring, renew as necessary. Examine piston and piston guide for signs of damage or scoring, repair or renew as necessary. Reconditioned valve to be bench tested.	See Data Section Item 3. See Data Section Item 3. See Test Specification No. A/2.

COMPONENT	WORK TO BE CARRIED OUT	REMARKS
<u>AIR SYSTEM (Continued).</u>		
<u>Unloader and Safety Valves.</u>	Remove from vehicle and strip, clean and examine; repair as necessary. Renew springs. Reconditioned valves to be bench tested before refitting to vehicle.	See Test Specification No. A/4 for unloader valves and Data Section Item 3 for Safety valves.
<u>All Other Air Valves and Cocks.</u>	Remove from vehicle and fit reconditioned units. Repair displaced cocks as necessary. Strip, clean and examine displaced valves. Check seating and diaphragms for condition. Renew diaphragms if there are any signs of deterioration. Recondition or renew seatings as necessary. Check operation and calibrate operating pressures of valves.	See Data Section Item 3.
<u>Air Jumper Flexible Connections</u>	Remove from vehicle. Renew flexible hose. Repair or renew connections as necessary.	
<u>Air Pressure Gauge</u>	Remove from vehicle and fit reconditioned gauge. Strip, clean and examine displaced gauge, repair as necessary. After final assembly, calibrate gauge against a master gauge.	During changing of gauge, ensure that jointing washer (pipe to gauge) is removed and correctly refitted and that no undue strain is placed on pipework during coupling of gauge to pipework.
<u>Gearbox Throttle Orifice</u>	Remove, Clean and examine; repair as necessary.	
<u>Non-Return Valve.</u>	Remove and fit new or reconditioned unit. Strip, clean, examine and repair as necessary the valve displaced. Renew spring.	

COMPONENT	WORK TO BE CARRIED OUT	REMARKS
<u>MISCELLANEOUS COMPONENTS</u>		
<u>Engine Mounting Links</u>	If engine is to be removed, clean and examine for defects. Repair as necessary.	
<u>Engine Exhauster Silencer.</u>	Remove from vehicle. Check retaining clips. Renew silencer if holed, or repack if empty.	
<u>Engine Exhaust Pipes (Rigid and Flexible)</u>	Renew exhaust pipes and exhaust joints. (See Remarks) Ensure that slip joints have a minimum overlap of 3 in. and that pipe clips are secure.	Renew pipes on condition where they are manufactured from thicker material than 16 gauge.
<u>Throttle Motors.</u> (Except RR)	Remove from vehicle and fit reconditioned unit. Strip, clean and examine displaced unit. Renew plunger bushes and washers. Check actuating lever for condition, renew as necessary. Remove shaft, clean and examine, repair or renew as necessary. Renew bushes and keys. Renew oil nipples, joints and springs. Repair or renew stops and non-return valve as necessary.	
<u>Hand Throttle</u>	Repair or renew as necessary.	
<u>Engine Air Cleaner</u>	Remove from vehicle. Strip, clean and examine and renew felt washers (where fitted).	

COMPONENT	WORK TO BE CARRIED OUT	REMARKS
<u>MISCELLANEOUS COMPONENTS (Continued)</u>		
<u>Fan Drive Shafts</u>	Remove from vehicle. Dismantle shaft, clean and examine, repair as necessary. Renew bearings and grease nipples	Ensure that the shaft needle bearings are renewed as a pair.
	Check wear on splines and renew shaft as necessary. Repair yoke as necessary, and ensure that needle bearing is a push fit in the yoke. Renew seal on universal bearing.	
<u>Gearbox Mounting Brackets.</u>	Clean and examine for defects. Repair as necessary. If gearbox is removed, bolts and mounting rubbers to be renewed. Displaced bolts to be physically scrapped.	See Data Section Item 4.
<u>Mileometers</u>	Remove from vehicle and fit reconditioned units. Strip, clean and examine displaced units, repair as necessary. Return to a zero reading. Reconditioned units to be bench tested and recalibrated.	

DATA

COMPONENT	MINIMUM	MAXIMUM	REMARKS	
<u>FUEL SYSTEM (EXTERNAL TO ENGINE)</u>				
<u>FUEL TANKS</u>				<u>ITEM 1.</u>
Test Pressure - Derby Lightweight Cars (with Small Tank)	$\frac{1}{2}$ lb/in <sup>2</sup>		Nominal	
- Birmingham C.& W., Saddle Tank Craven and Rolls Royce Power Cars.	1 lb/in <sup>2</sup>		Nominal	



COMPONENT	MINIMUM	MAXIMUM	REMARKS
<u>COOLING SYSTEM (EXTERNAL TO ENGINE)</u>			
<u>RADIATOR AND FAN UNIT.</u>			<u>ITEM 2.</u>
Units Fitted to 150 h.p. Engined Power Cars.			
Total Out-of-Balance Force permissible on Fan Assembly	-	1.5 oz.in.	
Diametral Clearance between Fan Blades and Casting	0.020 in.	-	
Test Pressure (Hydraulic)		10 lb/in. <sup>2</sup>	
Units Fitted to Inter-City Power Cars (C.A.V. Serck)			
Total Out-of-Balance Force permissible on Fan Assembly		1.5 oz.in.	
Diametral Clearance between Fan Blades and Casting	0.020 in.	-	
Hydraulic Test Pressure		10 lb/in. <sup>2</sup>	
Maximum number of sealed tubes permissible		3% of total number of tubes.	
Unit fitted to 6 cyl. and 8 cyl. Rolls Royce Power Cars.			
Total out-of-balance force permissible on Fan Assembly		1.5 oz.in.	
Diametrical clearance between fan blades and casting.	0.020 in.	10 lb/in. <sup>2</sup>	
Hydraulic Test Pressure.		3% of total	
Maximum number of sealed tubes permissible.		No. of tubes.	

COMPONENT	MINIMUM	MAXIMUM	REMARKS
<u>AIR SYSTEM</u>			
Air Reducing Valve			<u>ITEM 3</u>
Main Control Spring - Length	3.250 in.	-	
Main Control Piston Spring Length	3.000 in.	-	
Piston - Diameter	1.740 in.	1.745 in.	
- Ovality	-	0.003 in.	
Piston Guide - Inside Diameter	1.750 in.	1.755 in.	
- Ovality	-	0.003 in.	
			See Test Specification No. A/2 for details of pressure settings and test.
<u>SAFETY VALVE</u>			
Blow-Off Pressure		100 lb/in <sup>2</sup>	
Resetting Pressure	97 lb/in <sup>2</sup>		

COMPONENT	MINIMUM	MAXIMUM	REMARKS
<u>MISCELLANEOUS COMPONENTS</u>			
Fan Drive Shaft			<u>ITEM 4</u>
Backlash between Splines	-	0.015 in	
Gearbox Mounting Brackets			
Bolts - Torque Loading	$\frac{3}{4}$ in.	175 lb.ft.	
	$\frac{5}{8}$ in.	100 lb. ft.	

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ITEM NO.	COMPONENT	MINIMUM	MAXIMUM	REMARKS	ITEM NO.
5	<p><u>TEDDINGTON RELIEF VALVE TYPES NZ/A/20 AND NZ/A/31 TEST PROCEDURE</u></p> <p><u>Immersion Test</u></p> <p>Couple inlet pipe to air supply. Immerse valve in water.</p> <p>Open air supply valve and raise pressure gradually until approx 5 lb/in<sup>2</sup>.</p> <p>Check for leaks around joint. Release pressure, remove valve and blow off surplus water with air blast.</p> <p><u>Pressure Test</u></p> <p>Fit valve to test rig. Raise pressure until valve is fully open. Air pressure gauge should read.</p> <p>Decrease pressure and check valve is completely closed at -</p> <p>Couple inlet port to air supply line and outlet port to water indicator bottle.</p> <p>Gradually open air supply valve until air commences to bubble through water in the indicator bottle.</p> <p>Air pressure gauge should read</p>	<p>3 lb/in<sup>2</sup></p> <p>5 lb/in<sup>2</sup></p>	<p>20 lb/in<sup>2</sup></p> <p>7 lb/in<sup>2</sup></p>		5

ITEM NO.	COMPONENT	MINIMUM	MAXIMUM	REMARKS	ITEM NO.
5	<p><u>Vacuum Test</u></p> <p>Connect inlet port to vacuum line. Open vacuum valve until air commences to bubble through water in the indicator bottle.</p> <p>Vacuum Gauge should read.</p> <p><u>Note</u> If it is not possible to carry out the vacuum test it is permissible to test the operation of the vacuum bellows by the following.</p> <p>Connect outlet port to air supply and inlet port to indicator bottle.</p> <p>Increase supply air pressure until air bubbles through the water in the indicator bottle.</p> <p>Air pressure gauge should read</p> <p><u>Relief Valve Spring</u></p> <p>Free Length</p> <p>Seal valve by locking wire</p>	2.1875 in	5 in Hg 2.5 lb/in <sup>2</sup>  2.5 lb/in <sup>2</sup>  2.1875 in		5