FAULT DIAGNOSIS
Vacuum/hydraulic system

Fault	*Possible Cause*	*Rectification*
LOW EFFICIENCY	1. Incorrect adjustment. 2. Air in system. 3. Incorrect, badly fitted, contaminated or distorted linings. 4. Linings or drums glazed. 5. Load sensing valve incorrectly set or faulty operation. 6. Servo unit faulty.	Check shoe to drum clearances. Bleed system. Renew brake linings. Deglaze as necessary. Check/adjust setting, check operation. Check operation.
PULLING TO ONE SIDE	Before checking brakes check tyre pressures, tyre pairing road springs and dampers. 1. Contaminated linings. 2. Shoes fitted incorrectly i.e. primary and secondary. 3. Faulty wheel cylinder or hose (opposite side to pull) 4. Loose backplate.	 Renew linings and rectify cause of contamination. Remove and refit shoes correctly. Renew or overhaul as necessary. Tighten to correct torque.
GRABBING	1. Contaminated linings or incorrect lining material. 2. Primary/secondary shoes interchanged. 3. Return spring broken or displaced. 4. Backplate loose. 5. Excessive hub end float. 6. Brake drum tilted or oval.	Renew linings. Remove and refit correctly. Fit new springs. Tighten new springs. Adjust end float. Remove clean flange or fit new drum.
FADE	1. Incorrect adjustment. 2. Primary/secondary shoes interchanged. 3. Incorrect lining material. 4. Drum worn. 5. Servo unit faulty. 6. Contaminated fluid.	Check/adjust shoe to drum clearances. Remove and refit correctly. Change linings. Fit new brake drum. Check operation. Change fluid.
BINDING—1 wheel All wheels	1. Brake over adjusted. 2. Shoes seized. 3. Broken return spring. 4. Swollen wheel cylinder seals. 5. Hose obstructed. 6. Master cylinder seals 7. Servo unit faulty.	Check/adjust shoe clearances. Lubricate contact areas. Renew springs. Overhaul wheel cylinders. Check hose for kinks. Overhaul master cylinder. Check operation
SQUEAL	1. Dust or dirt in drums. 2. Contaminated linings. 3. Backplate loose. 4. Wheel cylinder loose.	Clean out drums. Change linings. Tighten to correct torque.
EXCESSIVE HANDBRAKE TRAVEL	1. Cable stretched. 2. Incorrect brake shoe adjustment.	Re-adjust handbrake. Check/adjust shoe clearances.

Air/hydraulic system

Fault	*Possible Cause*	*Rectification*
LOW BRAKE EFFICIENCY	1. Brakes not adjusting.	Check operation.
	2. Air in hydraulic system.	Check fluid level in master cylinder. Bleed brakes. Check hydraulic system for loss.
	3. Load sensing valve faulty, or incorrectly set.	Test valve. Adjust if necessary.
	4. Brake linings worn.	Renew brake linings. Adjust brakes.
	5. Oil or grease on linings or drums.	Renew linings. Renew hub oil seals and/or wheel cylinder rubbers.
	6. Linings or drums glazed.	Deglaze linings and drums. Check that correct linings are being used.
	7. Low air pressure.	Insert test gauges into service reservoirs. If low pressure is confirmed, check compressor, governor valve and quadruple charge protection valve.
BRAKES PULL TO ONE SIDE	1. Incorrect tyre pressures.	Inflate tyres to correct pressure.
	2. Tyres not paired.	Check for similar tread depth and pattern of tyres on each axle.
	3. Suspension or steering fault.	Check road springs, dampers and steering angles.
	4. Oil or grease on brake linings.	Renew linings – (both sides) and hub oil seal and/or wheel cylinder rubbers.
	5. Brake shoes wrongly fitted – primary/secondary interchanged, or shoe reversed.	Fit shoes correctly on backplate, with correct lining. (See Data).
	6. Backplate loose.	Tighten backplate bolts.
	7. Wheel cylinder faulty (on opposite side to brake pull).	Renew or overhaul wheel cylinder.
	8. Flexible hose blocked (on opposite side to brake pull).	Renew flexible hose.
BRAKES GRABBING May be evident at low speed, when moderate pressure on the pedal results in the brake of one or more wheels suddenly jamming on.	1. Brake shoes wrongly fitted – primary/secondary interchanged or shoes reversed.	Refit shoes correctly, with correct linings.
	2. Wrong type of lining fitted.	Fit correct lining. See Data.
	3. Brake drum oval.	Renew brake drum.
	4. Brake shoe return spring(s) broken/displaced.	Fit new shoe return springs.
	5. Back plate loose.	Tighten backplate bolts.
	6. Oil or grease on linings or drums.	Renew linings. Renew hub oil seal/ or wheel cylinder rubbers.
	7. Hub bearings loose.	This will allow the drum to tilt in relation to the shoes. Adjust the hub bearings.
	8. Brake drum tilted on hub	Clean the hub flange and brake drum face. Refit the drum square, and tighten the nuts evenly.
BRAKES APPLY SLOWLY	1. Brakes not adjusting.	Check operation.
	2. Low air pressure.	Insert test gauges into service reservoirs. If low pressure is confirmed, check compressor, governor valve and quadruple charge protection valve.
	3. Excessive air leak with brakes applied.	Check and correct.
	4. Restriction in hydraulic line or flexible hose.	Examine hydraulic lines for kinks and damage. Check lines and hoses for restriction.

Fault	*Possible Cause*	*Rectification*
BRAKES RELEASE SLOWLY	1. Foot control valve not exhausting freely.	Test foot control valve.
	2. Restriction in air lines.	Examine air lines for kinks and restrictions.
	3. Restriction in hydraulic lines or flexible hoses.	Release a hydraulic connection at a wheel cylinder. If the brakes on that axle release quickly, the fault is in the hydraulic lines, master cylinder or actuator. Examine hydraulic lines and flexible hoses for restriction.
	4. Wheel cylinder rubbers swollen.	If brakes do not release quickly when hydraulic connection is released, the fault is within the brake unit. Examine wheel cylinder rubbers, renew if necessary, flush the hydraulic system and renew all rubbers.
	5. Brake shoe return springs broken, or incorrectly fitted.	Examine springs, refit or renew.
	6. Master cylinder pistons sticking or seals swollen.	Release the hydraulic connections at master cylinder. If brakes release quickly the fault is in the master cylinder or actuator. Overhaul as necessary. If seals are swollen, flush the hydraulic system and renew all rubbers.
	7. Tandem actuator pistons sticking.	Overhaul actuator.
BRAKES CHATTER	1. Brakes not adjusting.	Check operation.
	2. Hub bearings loose.	Adjust hub bearings.
	3. Brake drum oval.	Renew brake drum.
	4. Brake drum tilted on hub flange.	Clean the hub flange and face of brake drum. Refit the drum and tighten the bolts evenly.
	5. Oil or grease on linings.	Renew linings. Renew hub oil seal and/ or wheel cylinder rubbers.
BRAKES SQUEAL	1. Dust or dirt in brake drum.	Clean out the brake assemblies.
	2. Oil or grease on drum or lining.	Renew linings. Renew hub oil seal and/ or wheel cylinder rubbers.
	3. Foreign material embedded in brake lining.	Renew linings.
	4. Brake back plate loose.	Tighten back plate securing bolts.
	5. Wheel cylinder or brake adjuster loose.	Tighten the securing bolts.
	6. Brake lining loose on brake shoe.	Renew lining and shoe assembly.
	7. Bent or distorted brake shoes or back plate.	Renew damaged parts.
BRAKES FADE	1. Brakes not adjusting.	Check operation.
	2. Incorrect brake lining fitted, or primary/secondary shoes interchanged.	Check that brake shoes are fitted correctly, and with the correct linings. (See Data).
	3. Excessive air leak at actuator, or between foot control valve and actuator.	Test for air leaks with brakes applied.
	4. Brake drums ground excessively.	Renew brake drums.

Fault Diagnosis

Fault	*Possible Cause*	*Rectification*
BRAKE BINDING – ONE WHEEL	1. Brake over-adjusted.	Adjust brake.
	2. Brake shoes tight/seized on backplate.	Lubricate and refit brake shoes.
	3. Brake shoe return spring broken.	Renew spring.
	4. Brake shoe distorted.	Renew brake shoe.
	5. Wheel cylinder rubbers swollen.	Renew rubbers, flush hydraulic system and renew all rubbers.
	6. Flexible hose blocked (front only).	Release hydraulic connection at wheel cylinder. If brake releases, fault is in hose or hydraulic line. Renew hose.
	7. Obstruction in hydraulic line.	Examine hydraulic line for kinks and restrictions.
BRAKES BINDING – ALL WHEELS	1. Foot control valve not fully exhausting.	Test foot control valve.
	2. Master cylinder pistons sticking or seals swollen.	Overhaul master cylinder. If seals are swollen, flush the hydraulic system and renew all rubbers.
	3. Incorrect clearance between master cylinder and actuator.	Check and if necessary adjust the clearance.
	4. Tandem actuator pistons sticking.	Overhaul the actuator.
PARK BRAKE NOT APPLYING	1. Quick release valve not exhausting.	Test the quick release valve.
	2. Hand control valve not exhausting.	Test the hand control valve.
	3. Compensator linkage incorrectly adjusted.	Check and adjust the compensator linkage.
	4. Wind-off mechanism of spring brake actuator not fully released.	Check wind-off mechanism.
	5. Auto-release valve faulty.	Check operation.
PARK BRAKE NOT RELEASING	1. Hand control valve faulty.	Test the hand control valve.
	2. Excessive air leak in air line, hand control valve to spring brake actuator.	Test for air leaks with hand control valve in 'OFF' position.
	3. Excessive air leak in park brake circuit.	Test for air leak.
	4. Piston sticking or seized in spring brake actuator.	Overhaul spring brake actuator.