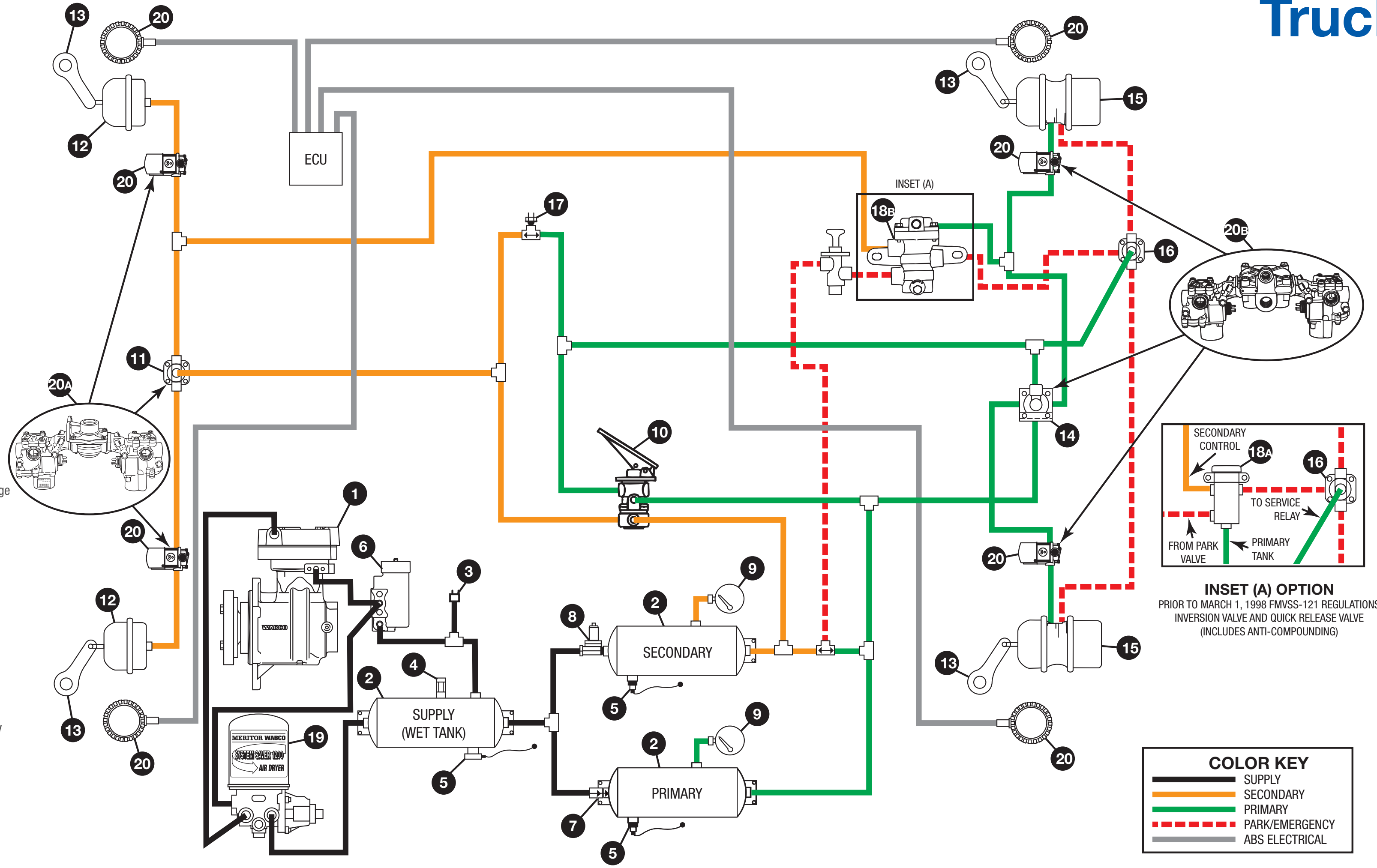


CONDITION/REMEDY

- 1. COMPRESSOR**
 - FOR TROUBLESHOOTING INFORMATION REFER TO THE OEM OPERATING INSTRUCTIONS.
 - NOTE: If the compressor is manufactured by WABCO, refer to Maintenance Manual 31 (318 Compressor for Mack E-Tech™ Engines) or contact WABCO Customer Care Center at 855-228-3203.
- 2. SUPPLY, PRIMARY AND SECONDARY AIR TANKS**
 - FOR TROUBLESHOOTING INFORMATION REFER TO THE OEM OPERATING INSTRUCTIONS.
- 3. LOW PRESSURE INDICATOR SWITCH**
 - BUZZER OR LIGHT INOPERABLE
 - Check ground and wiring on switch and buzzer/light.
 - Replace switch or buzzer/light.
 - WON'T OPERATE AT PRESSURES BELOW 60 P.S.I.
 - Check dash gauge for accuracy.
 - Replace switch or buzzer/light.
- 4. SAFETY VALVE**
 - "POPS" OFF EXCESSIVELY
 - Check system pressure.
 - Valve operating properly when venting at 140/150 P.S.I. (as required).
 - Check unloader/governor.
 - "POPS" OFF AT LESS THAN 140 P.S.I. > Replace.
 - LEAKS > Replace.
 - WON'T FUNCTION > Replace if non-functional.
 - Periodic Test: remove and test above 150 P.S.I. with shop air.
- 5. DRAIN VALVES — MANUAL**
 - LEAKS > Replace.
- 5. DRAIN VALVES — AUTOMATIC**
 - WON'T DRAIN > Repair or replace.
 - WON'T DRAIN IN COLD WEATHER > Replace with heated unit.
 - LEAKS — MALFUNCTIONS > Repair or replace.
 - Periodic Test: with system pressure stabilized (compressor unloaded) no leak evident at discharge port — make several foot brake applications to reduce wet tank pressure. Moisture should drain from discharge port.
- 6. GOVERNOR**
 - FLUTTERS
 - Check gauge.
 - Check unloader line size (5/16" x 5' maximum).
 - Check air actuated accessory. Is the air volume requirement greater than governor capacity?
 - Check for plugged governor reservoir line.
 - Repair, adjust or replace governor.
 - WON'T PASS AIR TO UNLOADER TO "CUT-OUT" COMPRESSOR
 - Check governor reservoir line.
 - Repair or replace.
- 7. SINGLE CHECK VALVE**
 - ALLOW BLEED BACK TO SUPPLY RESERVOIR
 - Periodic Test: bleed supply reservoir and observe gauges. Check valves should maintain primary and secondary reservoir pressure.
 - Replace if test results are negative.
- 8. PRESSURE CONTROL CHECK VALVE**
 - WILL NOT PERMIT AIR TO PURGE AIR DRYER. CHECK THAT ONE-WAY CHECK HAS BEEN REMOVED.
- 9. AIR GAUGE**
 - FOR TROUBLESHOOTING INFORMATION REFER TO THE OEM OPERATING INSTRUCTIONS.
- 10. DUAL SYSTEM FOOT BRAKE VALVE**
 - LEAKS AT EXHAUST WITH ALL BRAKES RELEASED
 - Check anti-compound double check valve #16.
 - Check #18A & 18B for back-flow into service control line.
 - Check seal in spring brake for back-flow of spring "hold-off" pressure through service port to open exhaust on valve. Replace #15 Spring Parking Brake.
 - CAUTION: CHOCK WHEELS — REPAIR AND REPLACE ITEMS AS NECESSARY.
 - LEAKS AT EXHAUST WITH FOOT BRAKE APPLIED > Foot valve defective. Repair or replace.
 - LEAKS AT EXHAUST WITH ALL PARK BRAKES SET IN PARK POSITION AND FOOT BRAKE RELEASED > Foot valve defective. Repair or replace.
- 11. QUICK RELEASE VALVE**
 - LEAKS AT EXHAUST PORT WITH ALL BRAKES RELEASED
 - Check and replace #18A or 18B if back-flow occurs into secondary control line.
 - LEAKS WHEN SERVICE BRAKES ARE APPLIED > Repair or replace.
- 12. SERVICE BRAKE CHAMBER**
 - FOR TROUBLESHOOTING INFORMATION REFER TO THE OEM OPERATING INSTRUCTIONS.
- 13. SLACK ADJUSTER**
 - FOR TROUBLESHOOTING INFORMATION REFER TO THE OEM OPERATING INSTRUCTIONS.
 - NOTE: If the slack adjusters are manufactured by WABCO refer to Maintenance Manual 4B (Automatic Slack Adjusters) or contact WABCO Customer Care Center at 855-228-3203 (Ilanasin costo desde Mexico 001-800-889-1834).

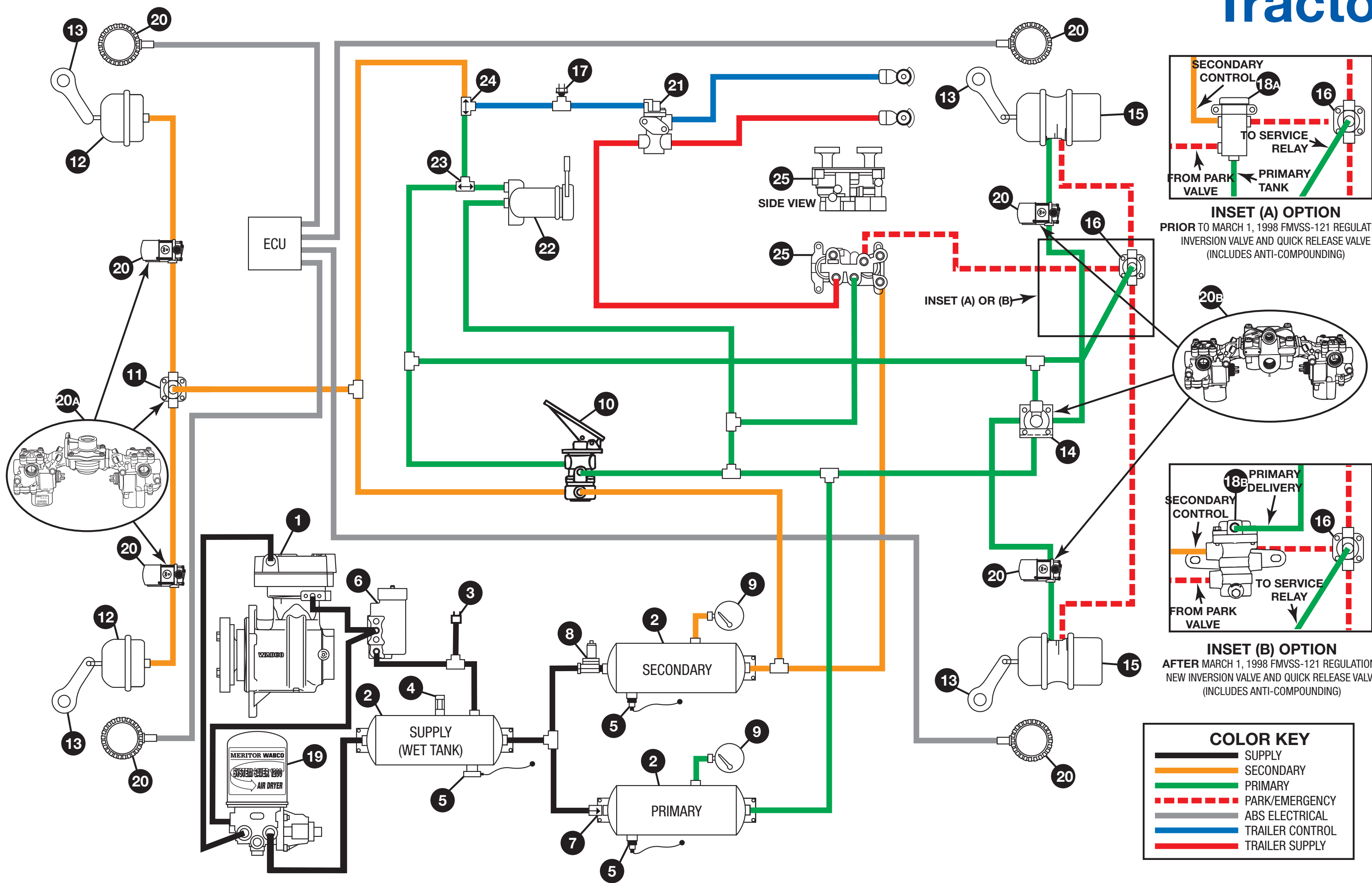


- 14. RELAY VALVE**
 - LEAKS AT EXHAUST PORT WITH ALL BRAKES RELEASED
 - Check seal in spring brake for back-flow of spring "hold-off" pressure through service port to open exhaust on valve. Replace #15 Spring Parking Brake.
 - Check reservoir port for evidence of contamination, check supply lines for rusty fittings or carbon deposits. Repair or replace.
 - LEAKS AT EXHAUST PORT WITH SERVICE BRAKES APPLIED
 - Exhaust valve not seating properly. Repair or replace.
- 15. SPRING PARKING BRAKE (SERVICE ONLY SERVICE CHAMBER SIDE OF SPRING BRAKE)**
 - FOR TROUBLESHOOTING INFORMATION REFER TO THE OEM OPERATING INSTRUCTIONS.
- 16. QUICK RELEASE AND DOUBLE CHECK VALVE COMBINATION**
 - FOOT VALVE EXHAUST LEAK PARK BRAKES RELEASED YELLOW DASH CONTROL V VALVE EXHAUST LEAK IN PARK POSITION AND SERVICE BRAKES APPLIED
 - Check anti-compound double check valve portion for feedback to foot or dash control valve. Repair or replace.
- 17. STOP LIGHT SWITCH**
 - LEAKS > Replace.
 - FAILS TO SIGNAL A GOOD BULB THROUGH SOUND WIRING AT 3-6 P.S.I. > Replace.
- 18A. INVERSION RELAY VALVE WITH THE LOSS OF REAR SERVICE BRAKES, 18B. APPLICATION OF SPRING BRAKE BY USING THE EMERGENCY SECTION SHOULD BE AVAILABLE ALONG WITH FRONT SERVICE BRAKE BY APPLYING FOOT VALVE**
 - PERIODICALLY TEST BY BLEEDING PRIMARY SERVICE TANK AND OBSERVING FRONT BRAKE AND REAR SPRING BRAKE APPLICATION UPON DEPRESSING FOOT PEDAL. REPAIR OR REPLACE, IF AFTER CHECKING INVERSION VALVE IS NOT FUNCTIONING PROPERLY.
 - LEAKS > Repair or replace.

- 19. AIR DRYER**
 - AIR LEAKING CONSTANTLY FROM PURGE VALVE
 - Purge valve seal damaged. Replace.
 - Purge valve frozen.
 - Inspect heater (see heater problems).
 - HEATER INOPERATIVE
 - Blown Fuse. Check fuse and replace with 8-10 amp fuse.
 - Broken wires or poor connections. Repair or replace wiring to heater.
 - SLOW WET TANK BUILD-UP
 - Filter and/or desiccant plugged. Service air dryer.
 - If a System Saver Series air dryer is installed, refer to WABCO Maintenance Manual 34 (Single Canister) or 35 (TWIN).
 - 20. ABS ELECTRONIC CONTROL UNIT, MODULATOR VALVES, SENSORS, AND TOOTH RINGS**
 - FOR TROUBLESHOOTING INFORMATION REFER TO THE OEM OPERATING INSTRUCTIONS.
 - 20A. FRONT AXLE VALVE PACKAGE (OPTIONAL)**
 - COMBINES TWO MODULATOR VALVES AND QUICK RELEASE VALVE.
 - 20B. REAR AXLE VALVE PACKAGE (OPTIONAL)**
 - COMBINES TWO MODULATOR VALVES AND RELAY VALVE.
- NOTE: If the vehicle has WABCO ABS, refer to WABCO Maintenance Manual 28 (C version ABS) or 30 (D version ABS).

CONDITION/REMEDY

- 1. COMPRESSOR**
 - FOR TROUBLESHOOTING INFORMATION REFER TO THE OEM OPERATING INSTRUCTIONS.
 - NOTE: If the compressor is manufactured by WABCO, refer to Maintenance Manual 31 (318 Compressor for Mack E-Tech™ Engines) or contact WABCO Customer Care Center at 855-228-3203.
- 2. SUPPLY, PRIMARY AND SECONDARY AIR TANKS**
 - FOR TROUBLESHOOTING INFORMATION REFER TO THE OEM OPERATING INSTRUCTIONS.
- 3. LOW PRESSURE INDICATOR SWITCH**
 - BUZZER OR LIGHT INOPERABLE
 - Check ground and wiring on switch and buzzer/light.
 - Replace switch or buzzer/light.
 - WON'T OPERATE AT PRESSURES BELOW 60 P.S.I.
 - Check dash gauge for accuracy.
 - Replace switch or buzzer/light.
- 4. SAFETY VALVE**
 - "POPS" OFF EXCESSIVELY
 - Check system pressure.
 - Valve operating properly when venting at 140/150 P.S.I. (as required).
 - Check unloader/governor.
 - "POPS" OFF AT LESS THAN 140 P.S.I. > Replace.
 - LEAKS > Replace.
 - WON'T FUNCTION > Replace if non-functional.
 - Periodic Test: remove and test above 150 P.S.I. with shop air.
- 5. DRAIN VALVES — MANUAL**
 - LEAKS > Replace.
- 5. DRAIN VALVES — AUTOMATIC**
 - WON'T DRAIN > Repair or replace.
 - WON'T DRAIN IN COLD WEATHER > Replace with heated unit.
 - LEAKS — MALFUNCTIONS > Repair or replace.
 - Periodic Test: with system pressure stabilized (compressor unloaded) no leak evident at discharge port — make several foot brake applications to reduce wet tank pressure. Moisture should drain from discharge port.
- 6. GOVERNOR**
 - FLUTTERS
 - Check gauge.
 - Check unloader line size (5/16" x 5' maximum).
 - Check air actuated accessory. Is the air volume requirement greater than governor capacity?
 - Check for plugged governor reservoir line.
 - Repair, adjust or replace governor.
 - WON'T PASS AIR TO UNLOADER TO "CUT-OUT" COMPRESSOR
 - Check governor reservoir line.
 - Repair or replace.
- 7. SINGLE CHECK VALVE**
 - ALLOW BLEED BACK TO SUPPLY RESERVOIR
 - Periodic Test: bleed supply reservoir and observe gauges.
 - Check valves should maintain primary and secondary reservoir pressure.
 - Replace if test results are negative.
- 8. PRESSURE CONTROL CHECK VALVE**
 - WILL NOT PERMIT AIRFLOW REQUIRED TO PURGE AIR DRYER
 - Make sure the single check valve has been removed.
- 9. AIR GAUGE**
 - FOR TROUBLESHOOTING INFORMATION REFER TO THE OEM OPERATING INSTRUCTIONS.
- 10. DUAL SYSTEM FOOT BRAKE VALVE**
 - LEAKS AT EXHAUST WITH ALL BRAKES RELEASED
 - Check anti-compound double check valve #16.
 - Check #20 and #18A & 18B for back-flow into service control line.
 - Check trailer air system for back-flow into tractor's service control line.
 - Check seal in spring brake for back-flow of spring "hold-off" pressure through service port to open exhaust on valve. Replace #15 Spring Parking Brake.
 - CAUTION: CHOCK WHEELS — REPAIR AND REPLACE ITEMS AS NECESSARY.
 - LEAKS AT EXHAUST WITH HAND VALVE APPLIED > Check double check valve #23 or #24. Repair or replace.
 - LEAKS AT EXHAUST WITH FOOT BRAKE APPLIED > Foot valve defective. Repair or replace.
 - LEAKS AT EXHAUST WITH ALL PARK BRAKES SET IN PARK POSITION AND FOOT BRAKE RELEASED > Foot valve defective. Repair or replace.
- 11. QUICK RELEASE VALVE**
 - LEAKS AT EXHAUST PORT WITH ALL BRAKES RELEASED
 - Check and replace #18A or 18B if back-flow occurs into secondary control line.
 - LEAKS WHEN SERVICE BRAKES ARE APPLIED > Repair or replace.
- 12. SERVICE BRAKE CHAMBER**
 - FOR TROUBLESHOOTING INFORMATION REFER TO THE OEM OPERATING INSTRUCTIONS.
- 13. SLACK ADJUSTER**
 - FOR TROUBLESHOOTING INFORMATION REFER TO THE OEM OPERATING INSTRUCTIONS.
 - NOTE: If the slack adjusters are manufactured by WABCO refer to Maintenance Manual 4B (Automatic Slack Adjusters) or contact WABCO Customer Care Center at 855-228-3203 (Ilanasin costo desde Mexico 001-800-889-1834).



- 14. RELAY VALVE**
 - LEAKS AT EXHAUST PORT WITH ALL BRAKES RELEASED
 - Check seal in spring brake for back-flow of spring "hold-off" pressure through service port to open exhaust on valve. Replace #15 Spring Parking Brake.
 - Check reservoir port for evidence of contamination, check supply lines for rusty fittings or carbon deposits. Repair or replace.
 - LEAKS AT EXHAUST PORT WITH SERVICE BRAKES APPLIED > Exhaust valve not seating properly. Repair or replace.
- 15. SPRING PARKING BRAKE (SERVICE ONLY SERVICE CHAMBER SIDE OF SPRING BRAKE)**
 - FOR TROUBLESHOOTING INFORMATION REFER TO THE OEM OPERATING INSTRUCTIONS.
- 16. QUICK RELEASE AND DOUBLE CHECK VALVE COMBINATION**
 - FOOT VALVE EXHAUST LEAK PARK BRAKES RELEASED YELLOW DASH CONTROL V VALVE EXHAUST LEAK IN PARK POSITION AND SERVICE BRAKES APPLIED > Check anti-compound double check valve portion for feedback to foot or dash control valve. Repair or replace.
- 17. STOP LIGHT SWITCH**
 - LEAKS > Replace.
 - FAILS TO SIGNAL A GOOD BULB THROUGH SOUND WIRING AT 3-6 P.S.I. > Replace.
- TOWING TRUCK OPTIONS**
- 18A. INVERSION RELAY VALVE WITH THE LOSS OF REAR SERVICE BRAKES, 18B. APPLICATION OF SPRING BRAKE BY USING THE EMERGENCY SECTION SHOULD BE AVAILABLE ALONG WITH FRONT SERVICE BRAKE BY APPLYING FOOT VALVE**
 - PERIODICALLY TEST BY BLEEDING REAR SERVICE TANK AND OBSERVING FRONT BRAKE AND REAR SPRING BRAKE APPLICATION UPON DEPRESSING FOOT PEDAL. REPAIR OR REPLACE, IF AFTER CHECKING INVERSION VALVE IS NOT FUNCTIONING PROPERLY.
 - LEAKS > Repair or replace.
- 19. AIR DRYER**
 - AIR LEAKING CONSTANTLY FROM PURGE VALVE
 - Purge valve seal damaged. Replace.
 - Purge valve frozen.
 - Inspect heater (see heater problems).
 - HEATER INOPERATIVE
 - Blown Fuse. Check fuse and replace with 8-10 amp fuse.
 - Broken wires or poor connections. Repair or replace wiring to heater.
 - SLOW SUPPLY (WET TANK) BUILD-UP
 - Filter and/or desiccant plugged. Service air dryer. If a System Saver Series air dryer is installed, refer to WABCO Maintenance Manual 34 (Single Canister) or 35 (TWIN) for additional troubleshooting information or contact WABCO Customer Care Center at 855-228-3203 (Ilanasin costo desde Mexico 001-800-889-1834).
- 20. ABS ELECTRONIC CONTROL UNIT, MODULATOR VALVES, SENSORS, AND TOOTH RINGS**
 - FOR TROUBLESHOOTING INFORMATION REFER TO THE OEM OPERATING INSTRUCTIONS.

- 20A. FRONT AXLE VALVE PACKAGE (OPTIONAL)**
 - COMBINES TWO MODULATOR VALVES AND QUICK RELEASE VALVE.
 - 20B. REAR AXLE VALVE PACKAGE (OPTIONAL)**
 - COMBINES TWO MODULATOR VALVES AND RELAY VALVE.
- NOTE: If the vehicle has WABCO ABS, refer to WABCO Maintenance Manual 28 (C version ABS) or 30 (D version ABS).
- 21. TWO-LINE TRACTOR PROTECTION VALVE (NON-AUTOMATIC TYPE)**
 - WILL NOT RESPOND TO TRAILER CHARGE VALVE > Defective valve. Repair or replace.
 - SUPPLY LINE TO TRAILER WITH SLOW BLEED-DOWN DOES NOT SHUT OFF TRACTOR AIR AND VENT BETWEEN 45 P.S.I. AND 20 P.S.I. > Check trailer charge valve #25, as it should "pop" to let T.P. valve vent trailer supply. Repair or replace.
 - LEAKS AT EXHAUST PORT OR TRACTOR SERVICE (BACK THROUGH HAND OR FOOT VALVE) OR TRAILER SUPPLY > Defective valve. Repair or replace.
 - 22. HAND CONTROL VALVE-TRAILER SERVICE BRAKES**
 - LEAKS AT EXHAUST PORT WHEN RELEASED AND FOOT VALVE IS APPLIED > Check #23. Replace if necessary.
 - LEAKS AT EXHAUST PORT WHEN RELEASED AND TRAILER PARKING BRAKES ALSO RELEASED > Check #21 for internal back-flow into service control line, or trailer air system for back-flow into tractor service control line.
 - LEAKS AT EXHAUST PORT WHEN RELEASED OR APPLIED AND ALL PARKING BRAKES IN PARKED POSITION > Hand control valve is defective. Repair or replace.
 - 23. DOUBLE CHECK VALVE SEPARATES TRAILER HAND VALVE PRESSURE FROM REAR FOOT BRAKE PRESSURE FOR DELIVERY TO TRAILER**
 - FOOT VALVE EXHAUST PORT LEAKS WHEN HAND VALVE IS APPLIED > Replace.
 - HAND VALVE EXHAUST PORT LEAKS WHEN FOOT VALVE IS APPLIED > Replace.
 - 24. DOUBLE CHECK VALVE SEPARATES FRONT AXLE FOOT BRAKE PRESSURE FROM REAR AXLE FOOT BRAKE PRESSURE AND/OR TRAILER HAND VALVE PRESSURE FOR DELIVERY TO TRAILER**
 - LEAKS THROUGH FOOT VALVE EXHAUST WITH HAND VALVE APPLIED > Replace #23 or #24.
 - 25. MANIFOLD DASH VALVE WITH BUILT-IN TWO-WAY CHECK (RED OCTAGON) TRAILER CHARGE (YELLOW DIAMOND) TRACTOR PARK**
 - PERIODIC Test: Alternately loosen each inlet line and apply pressure to other. If leak is detected — replace.
 - PARK BRAKE WON'T RELEASE > Check for full system pressure delivery through valve.
 - PARK BRAKE WON'T APPLY > Repair or replace, if it will not release pressure.
 - LEAKS AT EXHAUST PORT IN PARK POSITION AND SERVICE BRAKES APPLIED > Check #16 anti-compound double check valve.
 - LEAKS AT EXHAUST PORT IN PARK POSITION AND SERVICE BRAKES RELEASED > Repair or replace.
 - WON'T APPLY TRAILER IMMEDIATELY WHEN "PULLED" > Replace, if it won't exhaust. Repair or replace #21 if #25 is functioning properly.
 - PRIMARY TANK BLEED-DOWN ALSO BLEEDS SECONDARY TANK OR VICE VERSA
 - Periodic Test: Pressure should remain in one tank after the other is drained. Replace, if inoperative.

U.S. / Canada: 855-228-3203
 Mexico: 800-953-0248
 www.zf.com/cv