

NOTES:

THESE GENERAL INSTALLATION GUIDELINES SHOULD BE USED IN CONJUNCTION WITH THE SPECIFIC INSTALLATION SCHEMATIC PACKAGED WITH THE BRAKE KIT. ANY DEVIATION FROM OUR INSTALLATION SPECIFICATIONS OR BRAKE KIT CONTENTS AS SUPPLIED MAY INVALIDATE ADR COMPLIANCE. USE OF OUR ADR38 SUB-ASSEMBLY APPROVAL NUMBER ('SARN') IS CONDITIONAL UPON PURCHASING A COMPLETE BRAKE KIT & INSTALLING AS PER OUR SPECIFICATIONS.

COUPLINGS

MOST KITS MAY BE ORDERED WITH DIFFERENT COUPLING OPTIONS. BAYONET COUPLINGS ARE MOST COMMON - FRONT (INCOMING) LINES MUST USE FEMALE FOR CONTROL (SERVICE) & MALE FOR SUPPLY (EMERGENCY). SELF-SEAL COUPLINGS MUST NOT BE USED FOR INCOMING LINES. REAR (OUTGOING) LINES ON TOWING TRAILERS (LEAD B-DOUBLE, ROADTRAIN, DOLLY) SHOULD HAVE OPPOSITE POLARIZATION TO ABOVE TO MATE WITH FRONT COUPLINGS OF FOLLOWING TRAILER.

GLADHAND COUPLINGS ARE IDENTIFIED VIA COLOUR CODING (RED = SUPPLY/EMERGENCY) AND/OR CAST-IN LEGENDS. DUOMATIC COUPLINGS ARE A PROPRIETARY CONNECTOR DESIGNED TO ELIMINATE POSSIBILITY OF CROSS-COUPLING AIR LINES. THEY ARE PURPOSE DESIGNED FOR EITHER DRAWBAR ('DOG') TRAILERS OR SEMI-TRAILERS - DRAWBAR TRAILERS USE SMALL MALE PART ON END OF HOSES OFF DRAWBAR, SEMI-TRAILERS USE LARGE SPRING-LOADED PART FIXED TO FRONT OF TRAILER. SELF-SEAL COUPLINGS SHOULD NOT BE USED ON INCOMING LINES - ONLY ON OUTGOING LINES.

AIR TANKS

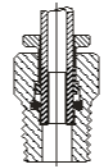
RUBBER ISOLATION PADS SUPPLIED IN KIT FOR TANK MOUNTING MUST BE USED. TANK WARRANTY IS VOID IF PADS ARE NOT INSTALLED. VALVES ARE GENERALLY MOUNTED DIRECTLY TO AIR TANKS, BUT SOME KITS ALSO PERMIT REMOTE VALVE MOUNTING. REFER TO INSTALLATION SCHEMATIC FOR DETAILS. LOCATION OF TANKS IS LARGELY DICTATED BY ALLOWABLE LINE LENGTHS AS DESCRIBED BELOW.

AIR LINES

RELATIVE POSITION OF VALVE/S & AIR TANK/S ON SCHEMATIC IS FOR GUIDANCE ONLY - VALVE/S & TANK/S SHOULD BE POSITIONED TO KEEP CRITICAL AIR LINE LENGTHS WITHIN MAXIMUM ALLOWABLE LIMITS INDICATED. USE OF LONGER LINES THAN INDICATED ON SCHEMATIC MAY INVALIDATE ADR APPROVED BRAKE RESPONSE TIMES. IF TRAILER DESIGN REQUIRES LONGER LINE RUNS, CONTACT OUR ENGINEERING DEPARTMENT FOR GUIDANCE.

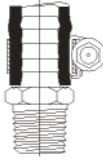
KITS ARE SUPPLIED WITH MOST FITTINGS PRE-ASSEMBLED INTO VALVES. IF ASSEMBLY IS REQUIRED, TEFLON PASTE SEALANT SHOULD BE APPLIED TO TAPERED THREADS & FITTINGS TIGHTENED TO THE FOLLOWING TORQUES. OVER-TIGHTENING CAN DAMAGE VALVE PORTS AND VOID WARRANTY.

- 1/4"NPT...20NM 3/8"NPT...25NM
- 1/2"NPT...30NM 3/4"NPT...40NM



KITS ARE SUPPLIED WITH PUSH-TO-CONNECT FITTINGS FOR NYLON TUBING. CUT TUBE SQUARELY TO DESIRED LENGTH & PUSH FIRMLY INTO FITTING. SOME RESISTANCE WILL BE FELT AS TUBE SLIDES PAST O-RING SEAL. CONTINUE PUSHING UNTIL TUBE SEATS AGAINST STOP. PULL LIGHTLY TO ENSURE CORRECT ENGAGEMENT. TO REMOVE, PUSH COLLAR AGAINST FITTING & PULL TUBE OUT.

RUBBER HOSE IS SECURED TO HOSE BARBS WITH TORQUE LIMITED WORM DRIVE HOSE CLAMPS. HOSE MUST BE PUSHED FULLY ONTO BARB & CLAMP POSITIONED WITH BAND COMPLETELY BEHIND BULB AT END OF BARB. CLAMPS MUST BE TIGHTENED UNTIL TORQUE HEAD BREAKS OFF. REFER TO PAGE 2 FOR ADDITIONAL DETAIL.



FAILURE TO FOLLOW THIS PROCEDURE CAN RESULT IN HOSE BLOW-OFF UNDER PRESSURE CAUSING BRAKE FAILURE OR UNCONTROLLED WHEEL LOCK.

SPRINGBRAKES

MOST KITS MAY BE ORDERED WITH OPTION OF DIFFERENT ACTUATOR SIZES (SERVICE &/OR SPRINGBRAKE CHAMBERS) TO SUIT DIFFERENT TRAILER VARIANT SPECIFICATIONS (BRAKE TORQUE CHARACTERISTICS, AXLE WEIGHTS, TYRE SIZES, ETC). ACTUATOR SIZE & SLACK ADJUSTER SETTING TO BE USED IS PART OF TRAILER'S COMPLIANCE PLATE APPROVAL ('CPA') SPECIFICATION APPROVED BY FEDERAL OFFICE OF ROAD SAFETY. CHECK TRAILER'S CPA DOCUMENTS FOR CORRECT SPECIFICATION. ACTUATORS SIZES APPROVED FOR USE WITH AIR BRAKE CORPORATION KITS ARE LISTED BELOW, ALONG WITH RELEVANT DATA & EQUATIONS FOR USE IN ADR38 CPA COMPLIANCE CALCULATIONS.

CONTACT ABC FOR FURTHER INFORMATION AVAILABLE IN TSE FLYER AVAILABLE UPON REQUEST.

ACTUATOR NOTES AND xEFFECTIVE SERVICExxEQUATION FOR 'A' FOR DESCRIPTION COMMENTS DIA.AREA (SQ.CM) EMERGY / PARK CALC

T12 / 1216 TSE 'HOT' MODEL, xxxDISC	85	1.20 - 0.0088S (95)
T16 / 1616 TSE 'HOT' MODEL, xxxDISC	95	1.20 - 0.0088S (95)
T20 / 2024 TSE 'HOT' MODEL, xxxDISC	110	0.99 - 0.0069S (140)
T24 / 2424 TSE 'HOT' MODEL, xxxDISC	140	0.99 - 0.0069S (140)
T20 / 2024 TSE 'OMNI' MODEL, S-CAM	110	0.76 - 0.0060S (140)
T24 / 2424 TSE 'OMNI' MODEL, S-CAM	140	0.76 - 0.0060S (140)
T24 / 2430 TSE 'OMNI' MODEL, S-CAM	140	0.69 - 0.0049S (180)
T30 / 3030 TSE 'OMNI' MODEL, S-CAM	180	0.69 - 0.0049S (180)

x VALUES LISTED ABOVE FOR EFFECTIVE SERVICE DIAPHRAGM AREA ARE AVERAGES DERIVED FROM DATA CERTIFIED BY THE GERMAN TUV TEST AUTHORITY. xx 'HOT' ('HIGH OUTPUT TECHNOLOGY') MODELS HAVE HIGHER POWER SPRING FORCE THAN CONVENTIONAL 'OMNI' MODELS, AND USE EUROPEAN SIZING DESIGNATIONS. THE EQUATIONS FOR 'A' LISTED ARE DERIVED FROM DATA CERTIFIED BY THE GERMAN TUV TEST AUTHORITY.

xxx ACTUATORS SPECIFICALLY DESIGNED FOR DISC BRAKES SUIT CALIPERS WITH DIRECT ACTUATION VIA AN INTERNAL LEVER, & HAVE A SPHERICAL PUSHROD END & INTERNAL PUSHROD SEAL. T12 / 1216 & T16 / 1616 'HOT' MODELS ARE ALSO AVAILABLE FOR LIGHT TRAILER S-CAM APPLICATIONS, & HAVE A THREADED PUSHROD & 4.75" MOUNTING STUD CENTRES.

PRIOR TO SPRINGBRAKE INSTALLATION, ENSURE SPRINGBRAKE IS CAGED. PUSHROD IS CUT TO CORRECT LENGTH, & AXLE MOUNTING BRACKET IS FREE OF EXCESSIVE PAINT (LESS THAN 0.25MM THICK), DEBRIS, BURRS, & CRACKS, & FLAT WITHIN 0.5MM. ALSO ENSURE THAT BRACKET MOUNTING HOLES ALIGN PROPERLY WITH SPRINGBRAKE MOUNTING STUDS.

CAGING

DO NOT ATTEMPT TO CAGE ANY SPRINGBRAKE WITH SIGNS OF STRUCTURAL DAMAGE OR SIGNIFICANT CORROSION. HANDLE DAMAGED SPRINGBRAKES WITH EXTREME CAUTION. FAILURE OF DAMAGED SPRINGBRAKE CAN CAUSE SEVERE PERSONAL INJURY.

APPLY MINIMUM 600KPA AIR PRESSURE TO EMERGENCY PORT. REMOVE DUST PLUG FROM RELEASE BOLT ACCESS HOLE IN REAR CENTER OF SPRING HOUSING. REMOVE RELEASE BOLT FROM SIDE POCKET, INSERT THROUGH ACCESS HOLE INTO PRESSURE PLATE, TURN ¼ TURN CLOCKWISE & PULL TO ENSURE CROSS-PIN EARS ARE PROPERLY ENGAGED IN PRESSURE PLATE. ASSEMBLE WASHER & NUT ONTO RELEASE BOLT FINGER TIGHT & RELEASE AIR PRESSURE. SPRINGBRAKE IS NOW CAGED.

NOTE: DO NOT TIGHTEN RELEASE NUT MORE THAN FINGER TIGHT. OVER TORQUING NUT CAN DAMAGE PRESSURE PLATE, WASHER AND/OR SPRING HOUSING, RESULTING IN SUDDEN RELEASE OF MAIN SPRING & SEVERE PERSONAL INJURY.

PUSHROD

SPRINGBRAKES FOR S-CAM APPLICATIONS ARE SUPPLIED WITH A FULL LENGTH THREADED PUSHROD TO ACCOMMODATE DIFFERENT AXLE BRACKET ARRANGEMENTS. PUSHROD MUST BE CUT TO CORRECT LENGTH FOR A GIVEN AXLE PRIOR TO INSTALLATION TO OBTAIN CORRECT ANGLE WITH SLACK ADJUSTER WHEN BRAKES ARE APPLIED. FAILURE TO DO SO CAN DEGRADE BRAKING PERFORMANCE & DAMAGE SPRINGBRAKE. PUSHROD LENGTH REQUIRED IS DEPENDANT ON RELATIONSHIP BETWEEN BRAKE CHAMBER AXLE MOUNTING BRACKET & SLACK ADJUSTER MOUNTING. AXLE SUPPLIER SHOULD BE ABLE TO ADVISE RECOMMENDED PUSHROD LENGTH. INSTALL CLEVIS JAMNUT ON ROD BEFORE CUTTING & REMOVE AFTER TO RESTORE THREAD.

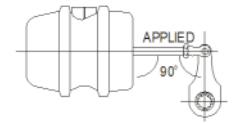
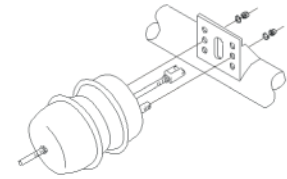
MOUNTING

THERE MAY BE MULTIPLE MOUNTING HOLES ON AXLE MOUNTING BRACKET CORRESPONDING WITH MULTIPLE HOLES ON SLACK ADJUSTER. ADR38 COMPLIANCE PLATE APPROVAL SPECIFICATIONS FOR THE TRAILER MAKE/MODEL/VARIANT WILL INDICATE CORRECT SLACK ADJUSTER HOLE TO USE. AXLE SUPPLIER SHOULD ADVISE CORRESPONDING BRACKET HOLE. ENSURE THAT WHEN MOUNTED, SPRINGBRAKE DOES NOT FOUL OR CONTACT ANY FRAME OR SUSPENSION COMPONENTS & THAT FULL SUSPENSION TRAVEL DOES NOT INTERFERE WITH SPRINGBRAKE.

BRAKE CHAMBER AXLE MOUNTING BRACKET MUST BE FREE FROM EXCESSIVE PAINT (LESS THAN 0.25MM THICK), DEBRIS, BURRS, & CRACKS, & FLAT WITHIN 0.5MM. ENSURE THAT SPRINGBRAKE MOUNTING STUDS ALIGN PROPERLY WITH HOLES IN AXLE BRACKET. IF STUDS DO NOT PASS THROUGH HOLES EASILY WITHOUT BINDING, DO NOT FORCE OR PULL SPRINGBRAKE ONTO BRACKET BY TIGHTENING NUTS - REWORK HOLES FOR EASY INSERTION OR REPLACE BRACKET. CLEARANCE BETWEEN HOLES & STUDS SHOULD NOT EXCEED 2MM. MOUNT SPRINGBRAKE DIRECTLY TO AXLE MOUNTING BRACKET. DO NOT ADD OR INSERT SHIMS, SPACERS, WASHERS, OR REINFORCING PLATES BETWEEN CHAMBER MOUNTING FACE & AXLE MOUNTING BRACKET.

INSTALL MOUNTING WASHERS & NUTS & TORQUE TO 150 TO 160 NM. REMOVE PIN FROM CLEVIS, ADJUST SLACK ADJUSTER TOWARD SPRINGBRAKE UNTIL APPROPRIATE HOLE ALIGNS WITH CLEVIS, & REINSTALL CLEVIS PIN. CONSULT AXLE SUPPLIER'S INSTRUCTIONS FOR CORRECT SLACK ADJUSTER ALIGNMENT & END PLAY ADJUSTMENT.

CONNECT AIR LINES & APPLY A MINIMUM 600KPA AIR PRESSURE TO EMERGENCY PORT. REMOVE RELEASE BOLT & SECURE IT IN SIDE POCKET WITH NUT & WASHER. INSTALL THE DUST PLUG INTO RELEASE BOLT ACCESS HOLE IN CENTER OF THE SPRING HOUSING. SPRINGBRAKE IS NOW UNCAGED. ADJUST BRAKES AS PER AXLE SUPPLIER'S RECOMMENDATIONS & CHECK THAT ANGLE FORMED BY SLACK ADJUSTER & BRAKE CHAMBER PUSH ROD IS GREATER THAN 90 DEGREES WHEN BRAKE IS IN RELEASED POSITION, & AS CLOSE TO 90 DEGREES AS POSSIBLE WHEN BRAKES ARE APPLIED.



FINAL TESTING

WHEN BRAKE KIT INSTALLATION IS COMPLETE, THE FOLLOWING CHECKS ARE RECOMMENDED. CHOCK WHEELS OR SECURE TRAILER TO PREVENT MOVEMENT DURING TESTING. ON TOWING TRAILERS (LEAD B-DOUBLE, ROADTRAIN, DOLLY), CONNECT AIR GAUGES TO REAR OUTGOING LINES & OPEN SHUT-OFF COCKS.

APPLY A MINIMUM 650KPA AIR PRESSURE TO FRONT SUPPLY COUPLING. AIR TANKS SHOULD BEGIN TO FILL. DEPENDING ON TYPE OF SPRINGBRAKE CONTROL VALVE USED, SPRINGBRAKES MAY REMAIN FULLY APPLIED UNTIL AIR TANK PRESSURE REACHES ABOUT 450KPA, OR MAY GRADUALLY RELEASE AS AIR TANKS CHARGE. GAUGE ON REAR SUPPLY COUPLING OF TOWING TRAILERS SHOULD ALSO SHOW PRESSURE. WHEN TANK PRESSURE EXCEEDS 450-550KPA, SPRINGBRAKES SHOULD BE FULLY RELEASED. CHECK ALL VALVES & AIR LINE CONNECTIONS FOR LEAKS.

REMOVE AIR PRESSURE FROM FRONT SUPPLY COUPLING. THERE SHOULD BE A SHORT EXHAUST OF AIR FROM SUPPLY LINE & SPRINGBRAKES SHOULD APPLY PROMPTLY. IF SPRINGBRAKES DO NOT APPLY, CHECK THAT THEY ARE NOT STILL CAGED (RELEASE BOLT IN REAR).

RE-APPLY AIR PRESSURE TO FRONT SUPPLY COUPLING. SPRINGBRAKES SHOULD RELEASE PROMPTLY. APPLY & RELEASE AIR PRESSURE AT FRONT CONTROL COUPLING SEVERAL TIMES. BRAKES SHOULD APPLY & RELEASE RAPIDLY IN RESPONSE TO AIR PRESSURE. GAUGE ON REAR CONTROL COUPLING SHOULD ALSO SHOW SIMILAR PRESSURE APPLICATION & RELEASE. WITH AIR ON BOTH COUPLINGS, CHECK ALL VALVES & AIR LINE CONNECTIONS AGAIN FOR LEAKS.

NOTE

SHUT-OFF COCKS AT THE REAR OF TOWING TRAILERS & DOLLIES ARE THERE TO CLOSE OFF AIR WHEN UNIT IS THE LAST IN A TRAIN. THEY MUST NEVER BE LEFT CLOSED WHEN A TRAILING UNIT IS CONNECTED, AS SERVICE BRAKES ARE RENDERED INOPERATIVE, WHICH CONFLICTS WITH LEGAL REQUIREMENTS, & BACKPRESSURE CAN ACCUMULATE CAUSING BRAKES TO DRAG. MAINTENANCE

FOLLOWING SERVICE INTERVALS ARE PROVIDED AS A GUIDE ONLY. VEHICLE OPERATING CONDITIONS VARY WIDELY, & EXPERIENCE MAY INDICATE THAT MORE FREQUENT SERVICE OF SOME COMPONENTS IS REQUIRED. CONVERSELY, USE OF A GOOD QUALITY AIR DRYER IN THE AIR SUPPLY SYSTEM MAY EXTEND SERVICE INTERVALS BEYOND THOSE BELOW. NOTE ALSO THAT FOLLOWING ONLY COVERS AIR SYSTEM - CONTACT AXLE SUPPLIER FOR RECOMMENDATIONS ON FOUNDATION BRAKE MAINTENANCE & ADJUSTMENT.

EVERY DAY

DRAIN ALL AIR TANKS

EVERY MONTH, 10,000KMS, OR 300 OPERATING HOURS

CHECK BRAKE ADJUSTMENT (CONTACT AXLE SUPPLIER FOR CORRECT ADJUSTMENT PROCEDURES); CHECK ALL AIR LINES, HOSES, & CONNECTORS FOR LEAKS, KINKS, BLOCKAGES, SECURITY, ETC; CHECK ALL VALVES & ACTUATORS FOR FUNCTION & LEAKS; CHECK ACTUATOR MOUNTING & TIGHTEN IF REQUIRED.

EVERY 24 MONTHS, 300,000KMS, OR 8000 OPERATING HOURS

(UNLESS OTHERWISE INDICATED IN RELEVANT MAINTENANCE MANUAL FOR PART)

OVERHAUL OR REPLACE ALL VALVES & ACTUATORS - RUBBER SEALING ELEMENTS & ACTUATOR DIAPHRAGMS DETERIORATE WITH AGE; THEY MAY FUNCTION WITHOUT A PROBLEM UNDER LOW PRESSURE DAY TO DAY BRAKING, BUT COULD EASILY FAIL WHEN MOST NEEDED - UNDER A FULL PRESSURE EMERGENCY BRAKE APPLICATION.

CONTACT AIR BRAKE CORPORATION IF MORE DETAILED INFORMATION ON FUNCTION &/OR REPAIR OF INDIVIDUAL COMPONENTS IS REQUIRED.

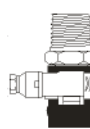
INSTALLATION OF RUBBER AIR BRAKE HOSE AND CLAMP

TO INSTALL

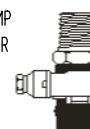
1. PUSH HOSE FULLY ONTO BARB



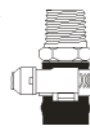
2. POSITION CLAMP FULLY OVER BULB IN BARB



3. TIGHTEN CLAMP WITH HEX DRIVER UNTIL



4. TORQUE CAP BREAKS OFF (INDICATING CORRECT TORQUE)



TO REMOVE

1. PRISE TORQUE CAP OFF



2. TO EXPOSE THE SLOTTED HEX HEAD



AS BUILT

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GENERAL INSTALLATION INSTRUCTIONS

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Hornsby, 2077

ABC00

SARN