
INSTALLATION INSTRUCTIONS FOR ACTIV-8 CONDUCTOR BAR SYSTEMS

APPLICABLE FOR THE FOLLOWING CONDUCTOR BAR TYPES :

- | | |
|------------------------------|--|
| • STAINLESS STEEL | [Standard sizes highlighted in bold]
⇒ 20 Amp rated |
| • GALVANISED STEEL | ⇒ 60 Amp, 100 Amp, 125 Amp rated |
| • COPPER | ⇒ 165 Amp, 200 Amp, 325 Amp rated |
| • ALUMINIUM /STAINLESS STEEL | ⇒ 200 Amp rated |

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1. RECOMMENDED TOOLS

1.1 TOOLS RECOMMENDED FOR INSTALLATION OF ACTIV-8 SYSTEM

- 1.1.1 Two wire brushes (one for use at ground level, one for use at runway level)
- 1.1.2 Linoleum knife
- 1.1.3 A tape measure
- 1.1.4 A thermometer with probe
- 1.1.5 Screwdrivers - Flat Head & Phillips Head
- 1.1.6 3mm and 4mm Allen Key
- 1.1.7 Adjustable Spanner

2. HANDLING INSTRUCTIONS

2.1 UNLOADING AND HANDLING OF ACTIV-8 COMPONENTS

- 2.1.1 Conductor bars are usually shipped in 4m long cardboard boxes and must be handled with care. Stack boxes horizontally only and support them in at least three places.
- 2.1.2 Do not use the conductor system as a support in any way. The system is not designed to withstand heavy loads, such as ladders.
- 2.1.3 Should it be necessary to clean the conductor system, use only good quality biodegradable detergent/soap and warm water. Do not use solvents, acids or alkalis and avoid contact with oils and grease.
- 2.1.4 Prior to installation, check quantities of parts supplied against the delivery docket and/or drawing, and check that no damage has occurred in transit.
- 2.1.5 Please read this installation manual in its entirety prior to commencing installation.

3. INSTALLATION INSTRUCTIONS

3.1 SUPPORT BRACKETS

- 3.1.1 Our straight-profile support bracket consists of a straight length of 25mm x 25mm x 3mm angle iron. There are versions suitable for monopole mounting of bars (3 pole or 4 pole) and versions suitable for cluster mounting of bars. This bracket is not supplied pre-fitted with hanger clamps. The straight-profile bracket is typically used for welded connection to the web of the runway beam.
- 3.1.2 Our Z-profile support bracket consists of a "Z" shaped flat steel section suitable for monopole mounting of bars (3 pole or 4 pole). This bracket is usually supplied with hanger clamps pre-fitted, however it can be supplied without hangers, if preferred. Note that the bracket is not supplied pre-fitted with anchor clamps - the anchor clamps are supplied loose and must be fitted on site by the installer. The Z-profile bracket is typically used for welded connection to top flange of runway beam. Welding should be full length fillet welds (both sides).
- 3.1.3 Attach the support brackets to the runway beam at the correct pitch, i.e., 1.5 metre centres for standard mount and 1.0 metre centres for lateral mount and in curves. At all times care should be taken to ensure that the support brackets do not coincide with the conductor bar joints. Ensure a minimum clearance of 150mm between conductor joints, power feeds, expansion assemblies and any mounting bracket.
- 3.1.4 For the Z-profile support brackets, consideration must be given to the location of the anchor clamps (see Section 3.3.2), as the support brackets without hanger clamps fitted will be mounted in these locations.

3.2 HANGER CLAMPS

- 3.2.1 As stated above, the Z-profile support brackets are supplied with the hanger clamps pre-fitted.
- 3.2.2 The straight-profile support brackets do not have the hanger brackets fitted, so these must be fitted on site. It is easiest to fit the hanger clamps to the support brackets prior to attaching these to the runway beam. Do not fully tighten hanger clamp fixing bolt until after conductor bars are mounted.
- 3.2.3 See Section 3.4 (below) for description on mounting conductor bars in hanger clamps.

3.3 ANCHOR CLAMPS

- 3.3.1 Anchor clamps are supplied loose regardless of the style of support bracket used (i.e., they are not pre-assembled on mounting brackets). It is easiest to fit the anchor clamps to the support brackets prior to attaching these to the runway beam. Do not fully tighten anchor clamp fixing bolt until after conductor bars are mounted.
- 3.3.2 For systems without expansion sections, the anchor clamps are installed closest to the mid point of the runway. If expansion sections are used the conductors must be anchored approximately halfway between each expansion section, and halfway between the last expansion section and the end of the runway.
- 3.3.3 See Section 3.4 (below) for description on mounting conductor bars in anchor clamps.

3.4 CONDUCTOR BAR

- 3.4.1 To install conductor bars, it is desirable if the hanger clamps (and anchor clamps) are not fully tightened on the support bracket. This allows slight rotation of the clamps to accept the conductor bars. This is certainly important in the case of curved sections. If hanger clamps are pre-assembled on support brackets, it may be necessary to loosen mounting bolts to allow movement of the clamp.
- 3.4.2 Push the conductor bar into the hanger clamp until it locks into position. Slight tilting (i.e., lateral rotation) of the bar may be necessary to ensure that the bar locks firmly into both lips of the hanger clamp. Once installed, ensure that the hanger clamp mounting bolts are fully tightened. Tighten the nut on top of each hanger clamp to a maximum torque of 16Nm. Check that the hanger clamps have not rotated but are still aligned parallel to the runway.
- 3.4.3 Conductor Bars are installed into anchor clamps in the same fashion as mounting in hanger clamps. Once snapped into position, the nylon bolt is tightened until the stainless steel pin end completely pierces the insulating cover of the conductor bar and presses against the metal part of the bar. Do not over-tighten the nylon bolt.
- 3.4.4 Wherever possible, start the installation of the conductor bars from one end and proceed to work towards the opposite end.

3.5 JOINING CONDUCTOR BARS

- 3.5.1 For Galvanised steel and Copper conductor bars install joints as follows. Loosen the socket head cap screws on the splice clamp so that the two clamp halves can be slightly separated. Slide splice clamp onto the conductor end that is to be jointed, and finger-tighten the cap screw. Then slide next conductor bar to be jointed into the splice clamp and finger-tighten other cap screw. Ensure that the splice clamp is equally spaced on both conductor ends, prior to tightening cap screws securely using an Allen key. Place the splice cover halves under the bottom lip of the conductor insulating cover. Snap covers halves together using thumb and finger pressure only.
- 3.5.2 For Aluminium / Stainless Steel conductor bars, installation of splices is essentially the same as detailed in section 3.5.1 above, however the areas to be jointed must be prepared prior to joining. The aluminium contact areas of the bars must be cleaned with a wire brush. Immediately after cleaning apply a jointing compound to the joint surfaces of the bars (and also to the clamping surfaces of the splice) and wire brush it in. Install splice assembly as previously described. [Note: follow the same cleaning and jointing procedure when fitting power feeds and expansion sections to aluminium / stainless steel conductor bars].

3.6 POWER FEED ASSEMBLIES

- 3.6.1 These can be installed in place of splices at conductor bar joints, or anywhere within the length of the conductor bar. [Note that a length of 60mm of insulation cover must be removed from a conductor bar when fitting the power feeds assemblies within a length of bar]. Use the same procedure for joining power feed assembly to conductors as fitting splices.
- 3.6.2 Install the supply cables prior to fitting the cover halves. The cover halves are provided with knockout ends to accommodate the supply cables. Use only flexible cables.

3.7 EXPANSION SECTION ASSEMBLIES

- 3.7.1 These assemblies are factory assembled and are supplied in 1.0 metre lengths. Use the same procedure for joining expansion assembly to conductors as fitting splices.
- 3.7.2 The airgap within the expansion joint must be adjusted in accordance with the temperature and gap setting chart at the time of installation. When the conductor installation has reached the next anchor point, recheck and readjust the airgap if required, prior to anchoring the conductor bar.
- 3.7.3 Note that installations with expansion sections require two collectors per phase to ensure continuous electrical supply.

3.8 END CAPS

- 3.8.1 End caps are used to insulate the exposed conductor bar ends at each end of the runway. The caps are designed to simply push on. They may be glued in place using electrical conduit glue, if desired.

3.9 COLLECTORS

- 3.9.1 The collector mounting arm must be installed and adjusted so that its centre line is at the correct offset from the contact surface. For the twin arm collectors (P/N 98497 and 98498) the correct offset is 127mm. For the single arm collectors (P/N 31589) the correct offset is 60mm. Align the collectors so that they run directly beneath the conductor bars. This will ensure maximum shoe life and permit full articulation of the collector head.

3.10 FIELD CUTTING OF CONDUCTOR

- 3.10.1 Using a hacksaw, cut completely through the PVC insulation and the metal of the bar. Ensure that the end of the bar is cut square.
- 3.10.2 Using a linoleum knife, cut back the PVC insulation cover 30mm from the end of the conductor.
- 3.10.3 Using a wire brush, remove all burrs from cut surface of the bar.

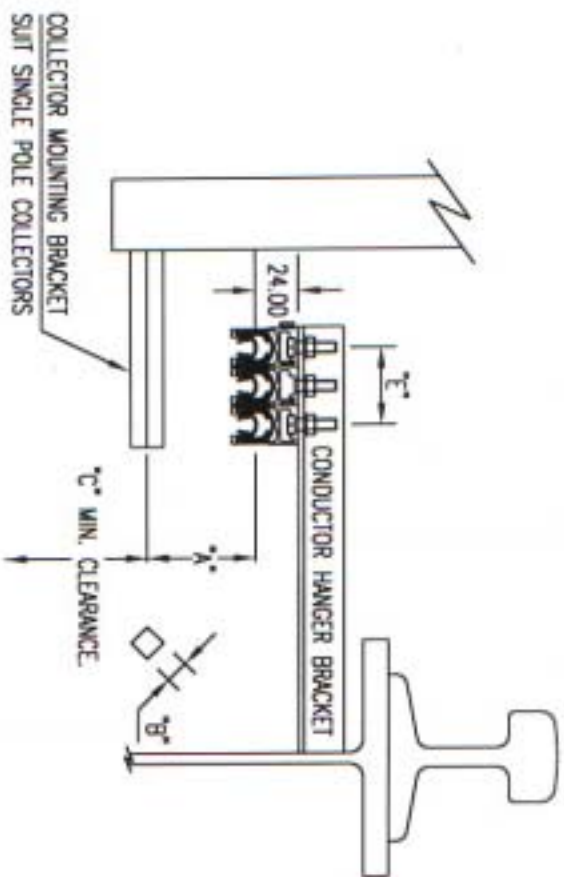
3.11 PICK-UP GUIDES

- 3.11.1 Pick-Up Guides are used on discontinuous systems, to guide collectors back onto the conductor bar. The Pick-Up Guides are supplied factory fitted on a length of conductor bar (approximately 2m long), which is curved upwards at the end where the Pick-Up Guide is fitted.
- 3.11.2 The Pick-Up Guides incorporate a large guide shroud consisting of Lexan side plates bolted together either side of the conductor bar. [Note, for Custer Mount systems, the conductor bars are assembled together in the one Pick-Up Guide Shroud].
- 3.11.3 A support bracket is required to pick up the 8mm bolts on the Pick-Up Guide structure. Note that, because this is in the region of the upwards raking bars, the support bracket must be higher than the other conductor bar support brackets. In addition, the bracket needs to be mounted on an angle to match the line of this upward raking section.

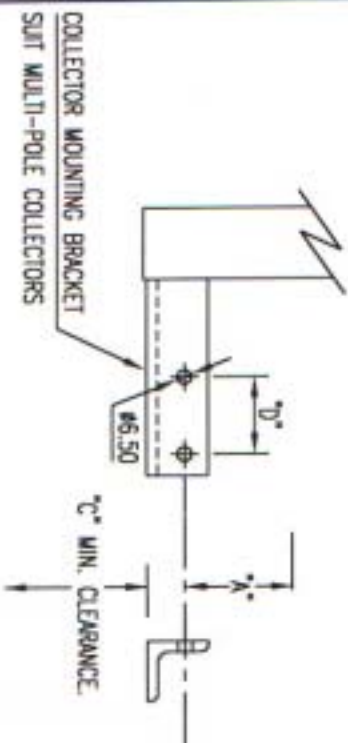
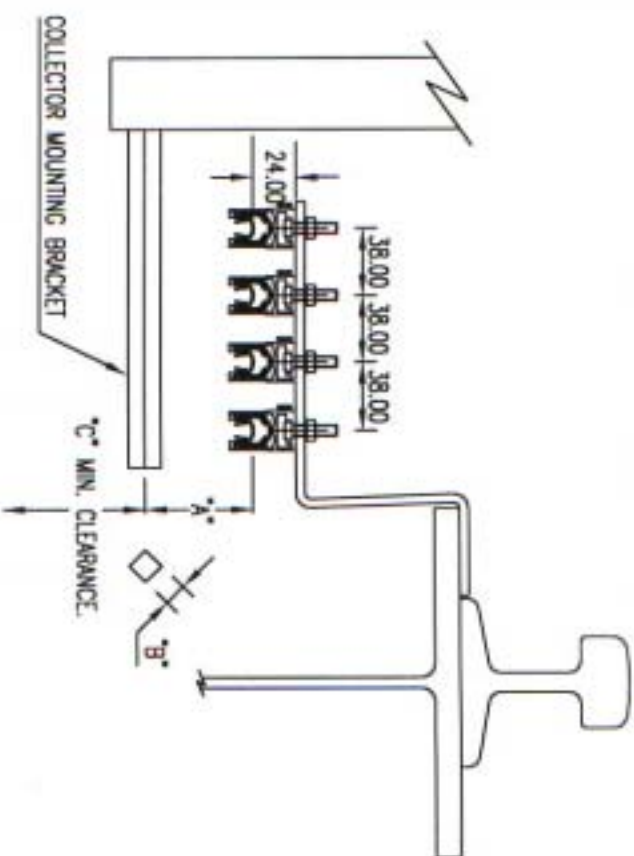
3.12 TRACK SWITCHING

- 3.12.1 At Track Gates and Track Switching, Transfer Caps are fitted to the end of the Conductor Bars.
- 3.12.2 When fitting Transfer Caps, cut the conductor bar insulation cover back 43mm. Slide Transfer cap onto end of conductor bar.
- 3.12.3 The Transfer Cap is bolted onto a conductor bar support bracket. Note that the standard support bracket must be drilled out to accept the M8 bolt on the Transfer Cap.
- 3.11.2 Ensure that structure is sufficiently aligned so that conductor bars line up closely in each track position. Maximum lateral misalignment of conductor bars is 4.5mm. Maximum air gap between aligning Transfer Caps on the same conductor bar circuit is 6mm.

CLUSTER MOUNTING



MONOPOLE MOUNTING



COLLECTOR	POLES	AMPS	DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "E"
31582	2	30	60	/	75	20	22
31583	3	30	60	/	75	42	44
31584	4	30	60	/	75	64	66
31589	1	30	60	12.5	75	/	/
98497	1	50	127	25	125	/	/
98498	1	100	127	25	125	/	/

REV.



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SUBJECT TYPICAL ACTV-8 CONDUCTOR BAR AND COLLECTOR MOUNTING ARRANGEMENT.

CLIENT

DRAWN MJ DATE 05:09:00

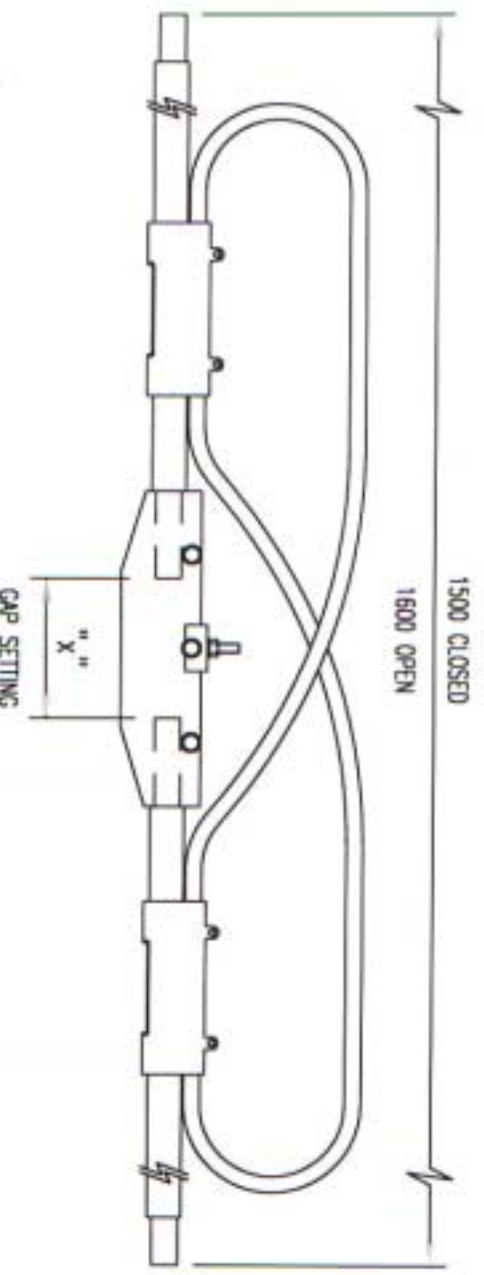
DEC. ANG. TOLERANCES ±0.25 ±1°

SCALE NTS.

ZD-011

REV.

ACTIV-8 EXPANSION GAP SETTINGS



TEMP C	GAP SETTING x (mm.)
0	110
5	99
10	88
15	77
20	66
25	55
30	44
35	33
40	22
45	11
50	0

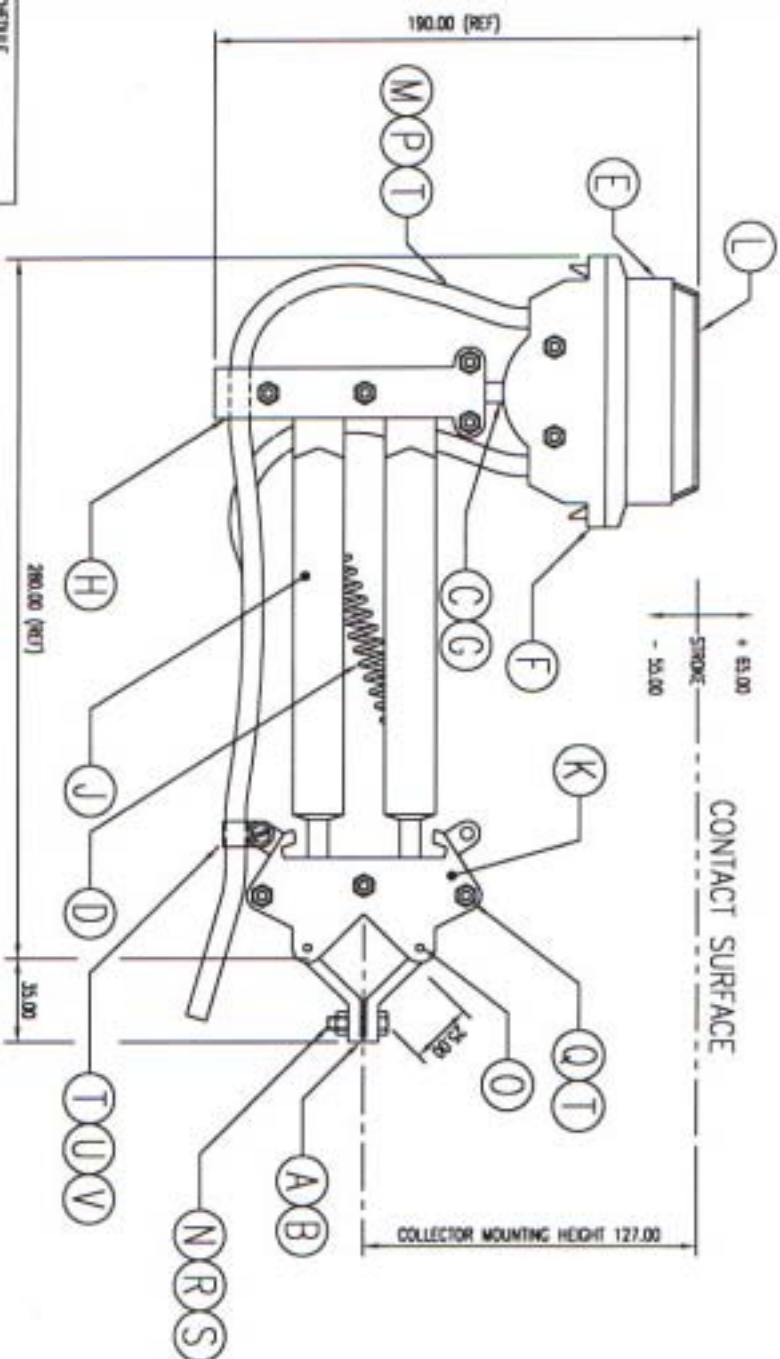
STANDARD CONDUCTOR LENGTH.	STEEL	COPPER	ALUM./ST.
EXPANSION SECTION LENGTH.	4m.	4m.	4m.
MAX. SYSTEM LENGTH WITHOUT EXP.	1.5m.	1.5m.	1.5m.
MAX. DISTANCE BETWEEN ANCHOR POINTS.	200m.	150m.	150m.
MAX. DIST. ANCHOR POINT TO END OF RUNWAY.	180m.	120m.	85m.
	100m.	75m.	75m.

DISTANCES BASED ON A 50C TEMPERATURE RANGE.
NOTE: FOR OTHER TEMP. RANGES CONSULT YOUR INSUL-8 REPRESENTATIVE.



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REV.								
SUBJECT		ACTIV-8 EXPANSION GAP SETTINGS						
CLIENT								
DRAWN		MU		DATE		31-08-00		
TOLERANCES		DEC. ±0.25		ANG. ±1'		SCALE		N.TS.
				ZD-010R1		REV. 1		



SCHEDULE			
PART NO.	AMPS	DESCRIPTION	ITEM "M" QTY.
98487	50	PHASE COLLECTOR	98194 1
98488	100	PHASE COLLECTOR	98194 2
98489	50	EARTH COLLECTOR	97880 1
98500	100	EARTH COLLECTOR	97880 2

V	90295	M 1/8 HEX. HD. WTS. S/S	1
U	10245	3/8" W/LOD. CARB. CLAMP	2
T	90292	M W/LOD. NUT. S/S	12
S	90297	M0 HEX. NUT. S/S	1
R	95300	5mm. SPRING W/GRER. S/S	1
Q	95305	M 1/2mm. CHEESE HD. WTS. S/S	9
P	95307	M 1/2mm. PHN HD. WTS. S/S	2
O	95308	4 x 20mm. GLANDLOCK ROLL PIN. S/S	2
N	95340	M0 x 20mm. HEX. HD. SETSCREW. S/S	1
M	"REFER SCHEDULE"		
L	98487	CONTACT SHOE COPPER GRANITE (No. 45227)	1
K	98480	BASE SIDE CHECK (DE No. 45192)	2
J	98481	COLLECTOR ARM (DE No. 45190)	2

REV.	DESCRIPTION	QTY.
H	98482 DND CHECK (DE No. 45191)	2
G	98483 HEAD POST. (DE No. 45195)	1
F	98484 HEAD SIDE CHECK (DE No. 45193)	2
E	98485 SHOE HOLDER. (DE No. 45198)	1
D	98486 AIR SPRING. (No. 45194)	1
C	98487 COMPRESSION SPRING. (No. 45125)	1
B	98488 W/NGE CLAMP. (No. 45290)	1
A	98489 W/NGE CLAMP. C/W RECESS (No. 45298)	1

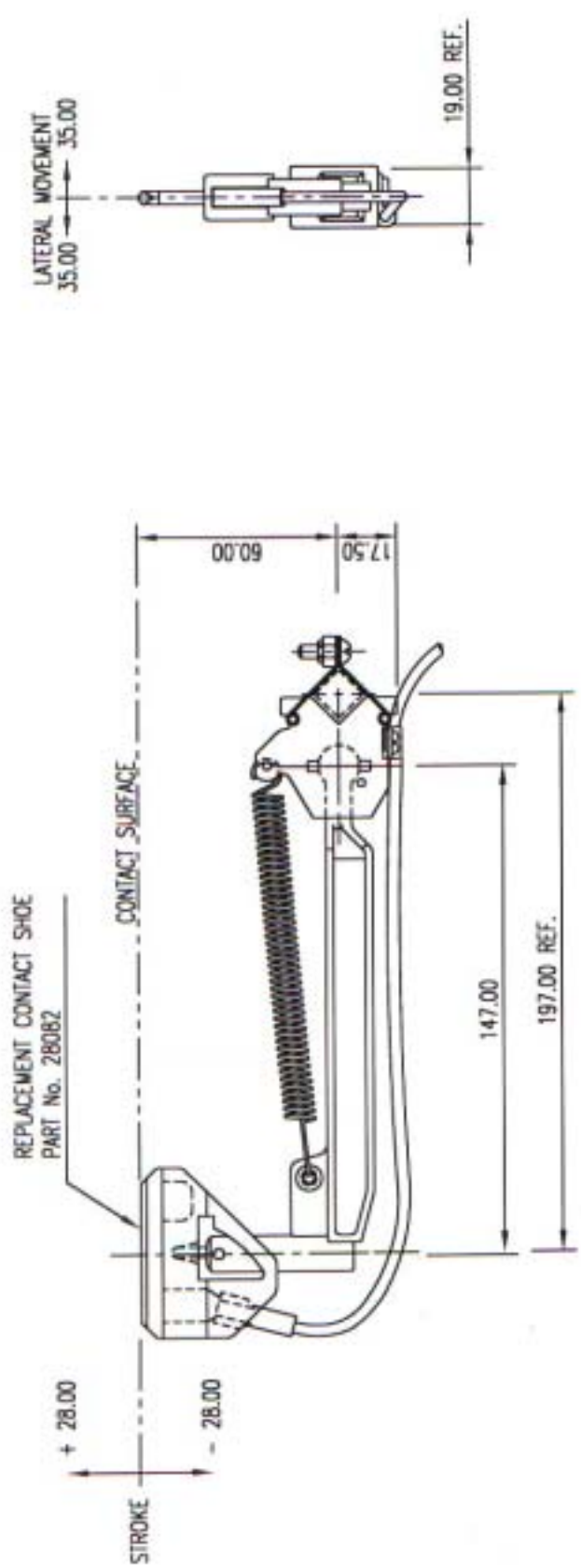


SUBJECT: DOUBLE ARM ACTIN-8 COLLECTOR
 BILL OF MATERIAL

CLIENT: M
 DATE: 18-10-00
 SCALE: N.T.S.

DRAWN: M
 DATE: 18-10-00
 SCALE: N.T.S.

REV. ZD-019



REPLACEMENT CONTACT SHOE
PART No. 28082

LATERAL MOVEMENT
35.00

CONTACT SURFACE

STROKE

19.00 REF.

60.00

17.50

147.00

197.00 REF.

REV.



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SUBJECT 30 AMP ACTV-8 COLLECTOR, SINGLE CONDUCTOR, PART No. 31589

CLIENT

DRAWN MJ

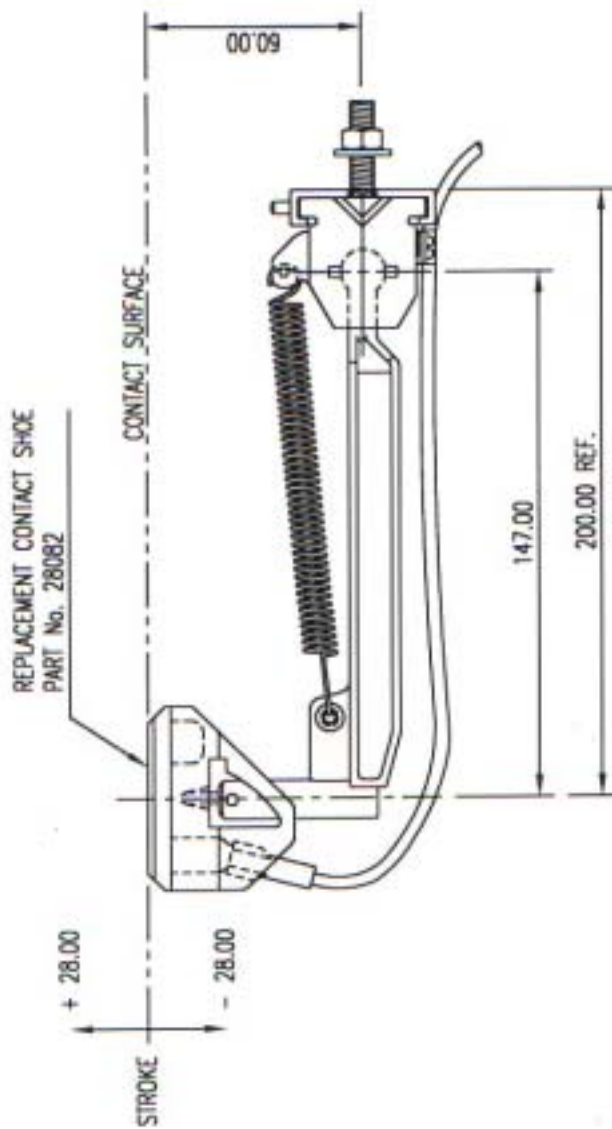
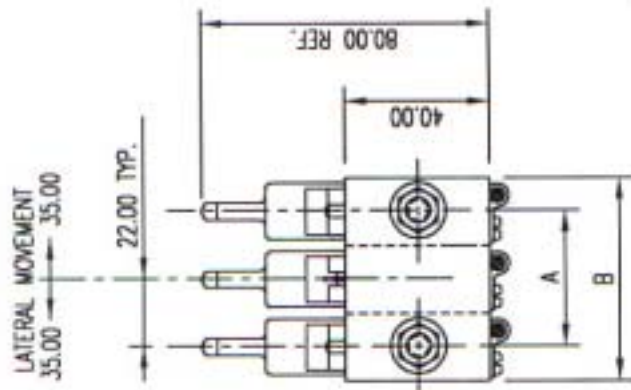
DATE 26:10:00

REV.

TOLERANCES DEC. ANG. ±0.25 ±1°

SCALE N.T.S.

ZD-023



PART No.	No. OF CONDUCTORS	A mm.	B mm.
31582	2	20	40
31583	3	42	62
31584	4	64	84

REV.



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SUBJECT 30 AMP ACTV-8 COLLECTOR, MULTI-CONDUCTOR.

CLIENT

DRAWN MJ DATE 26:10:00

TOLERANCES ±0.25 DEC. ANG. ± 1° SCALE N.T.S.

REV.

ZD-024