74-407791	TITLE POTENTIAL RELAY APPLICATION SELECTION OF THE PROPER COIL VOLTAGE RATING	74-407791
CONT ON SH. 1 SHEET NO. A	FIRST MADE FOR 3ARR3, 3ARR22	CONT ON SH. 1 SHEET NO. A

THE CONTINUOUS DUTY VOLTAGE OF THE RELAY COIL MUST BE EQUAL TO OR GREATER THAN THE MAXIMUM VOLTAGE TO WHICH IT WILL BE EXPOSED. THIS VOLTAGE WILL BE THE VOLTAGE INDUCED IN THE MOTOR START WINDING WHEN THE MOTOR IS RUNNING AFTER THE START WINDING HAS BEEN DISCONNECTED. IT WILL BE THE GREATEST WHEN THE THE LINE VOLTAGE IS AT ITS MAXIMUM, WHEN THE MOTOR IS RUNNING AT ITS MAXIMUM SPEED (LIGHTLY LOADED), AND WHEN THE RUN CAPACITOR SIZE IS LARGEST.

THE EFFECT OF THE "EFFECTIVE AMBIENT TEMPERATURE" SURROUNDING THE RELAY MUST ALSO BE TAKEN INTO ACCOUNT.

THE EFFECTIVE AMBIENT TEMPERATURE IS NOT THE AMBIENT TEMPERATURE IN WHICH THE APPLIANCE OR EQUIPMENT IS INSTALLED, BUT IS THE AMBIENT TEMPERATURE SURROUNDING THE RELAY WHILE THE APPLIANCE IS OPERATING. OFTEN THE ENCLOSED CONTROL COMPARTMENT WILL BE SUBSTANTIALLY HIGHER IN TEMPERATURE THAN THE AREA AROUND THE APPLIANCE. IN SOME CASES OTHER HEAT SOURCES OR RADIANT EFFECTS ARE CONTRIBUTORS TO ITS TEMPERATURE.

THE MAXIMUM ALLOWABLE TEMPERATURE OF THE COIL WINDING IS 120°C, WHEN MEASURED BY CHANGE IN RESISTANCE METHOD.

THIS MEANS THAT THE COIL GROUP NUMBER SELECTED MUST NOT PRODUCE A HEAT RISE, WHICH WHEN ADDED TO THE EFFECTIVE AMBIENT TEMPERATURE, WILL RESULT IN THE COIL TEMPERATURE EXCEEDING THE MAXIMUM ALLOWABLE FOR THE SPECIFIC INSULATION CLASS.

IF THIS SHOULD OCCUR, A COIL GROUP SHOULD BE SELECTED WHICH WILL PRODUCE A LOWER HEAT RISE WITH THE MAXIMUM VOLTAGE APPLIED TO THE COIL. A GROUP WITH A HIGHER COIL RATING WILL PRODUCE A LOWER HEAT RISE AT A SPECIFIC APPLIED VOLTAGE.

IF THE COMPRESSOR/MOTOR MANUFACTURER IS NOT SURE OF THE ACTUAL EFFECTIVE AMBIENT IN THE APPLIANCE IN WHICH THE RELAY IS INSTALLED, A WORST CONDITION OF 40°C OR HIGHER SHOULD BE USED IN SELECTING THE PROPER COIL GROUP. FOR EXAMPLE, UNITS INSTALLED OUTDOORS OR IN TIGHTLY CONFINED SPACES.

TO PREDICT A HEAT RISE AT A NEW VOLTAGE, MULTIPLY THE KNOWN RISE AT A SPECIFIC VOLTAGE BY THE SQUARE OF THE RATIO OF THE NEW VOLTAGE OVER THE OLD.

TABLES OF COILS BY GROUP, ALONG WITH CALIBRATION IDENTIFICATION FOLLOW ON SHEETS 1 THRU 4. THE COIL RATINGS FOR SPECIFIC GROUPS FOR 50 HZ OPERATION ARE ON SEPARATE SHEETS. IT SHOULD BE NOTED THAT FOR A GIVEN COIL GROUP, THE VOLTAGE RATING AT 60 HZ IS HIGHER THAN FOR 50 HZ.

		REVISIONS		PRINTS TO		
		1	96-4-9 GENE SPENNY ET-92182			AE A9
		2	98-3-11 GENE SPENNY ET-93701			T
		3	2005-10-04 K. RENKES ET-96912			SP F
						F

MADE BY	APPROVAL		74-407791
GENE SPENNY OCT. 24, 1989	SRM	APPLIANCE CONTROLS MORRISON, IL 61270	CONT ON SH. 1 SHEET NO. A
ISSUED NOVEMBER 28, 1989 ON ET-85457			

GE MOTOR STARTING RELAY (3ARR3, 3ARR22) DATA

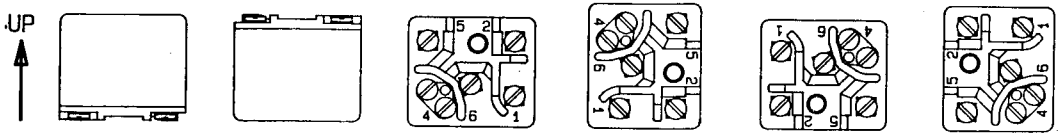
CALIBRATION VALUES ARE BASED ON AVERAGE COIL COPPER TEMPERATURES OF: COLD 35°C HOT 95°C.

CUSTOMER COLD PICK-UP AND DROP-OUT FOR EACH COIL GROUP

COIL GROUPS ARE U.L. CLASS B RATING AND VDE RECOGNIZED. (U.L. FILE SA639 AND VDE LICENSE 40014098)

CALIBRATION IDENTIFICATION	FREQUENCY (HERTZ)	HOT PICK-UP VOLTS		MAXIMUM COIL VOLTAGES FOR SPECIFIED MAXIMUM TEMPERATURE RISE																											
				GROUP 2, 12 168V-Δ 80°C 147V-Δ 60°C				GROUP 3, 13 332V-Δ 80°C 290V-Δ 60°C				GROUP 4, 14 500V-Δ 80°C 439V-Δ 60°C				GROUP 5, 15 253V-Δ 80°C 221V-Δ 60°C				GROUP 6, 16 420V-Δ 80°C 376V-Δ 60°C				GROUP 7, 17 130V-Δ 80°C 114V-Δ 60°C				GROUP 8, 18 214V-Δ 80°C 187V-Δ 60°C				GROUP 9, 19 317V-Δ 80°C 277V-Δ 60°C				GROUP 10, 20 375V-Δ 80°C 328V-Δ 60°C			
				PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT	
				MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
A	60	260	280					243	271	40	90	239	268	60	135	240	269	35	77	242	272	60	121					238	266	25	65	243	271	40	90	239	270	50	110
B	60	280	300					261	290	50	100	258	287	60	135	259	288	35	77	262	290	60	121					256	285	25	65	261	290	50	100	260	289	50	110
C	60	300	320					280	309	55	100	277	305	60	135	278	306	35	77	280	310	60	121					275	303	25	65	280	309	55	100	279	308	50	110
D	60	320	340					299	327	50	100	295	324	60	135	296	325	35	77	300	328	60	121					293	324	25	65	299	327	50	100	298	326	50	110
E	60	340	360					317	345	50	100	314	342	60	135	315	343	35	77	318	347	60	121									317	345	50	100	316	344	50	110
F	60	350	370					326	354	50	100	323	352	60	135	323	352	35	77	328	356	60	121									326	354	50	100	325	354	50	110
G	60	360	380					335	364	50	100	332	361	60	135	333	363	35	77	337	366	60	121									335	364	50	100	334	363	50	110
H	60	365	395									336	376	70	150					340	370	75	181																
J	60	120	130	111	124	20	45																	111	125	15	40												
K	60	130	140	120	134	20	45									120	134	35	77					121	134	15	40	120	134	25	57								
L	60	140	150	130	144	20	45	132	148	40	90					130	143	35	77					130	143	15	40	129	142	25	57								
M	60	150	160	140	153	20	45	142	157	40	90					140	152	35	77					139	153	15	45	139	152	25	57								
N	60	160	170	149	163	20	45	152	166	40	90					150	163	35	77					149	163	15	40	149	162	25	57	152	166	40	90				
P	60	170	180	159	172	20	45	162	175	40	90					159	172	35	77									158	171	25	57	162	175	40	90				
R	60	180	190	168	182	20	45	171	184	40	90					168	182	35	77									167	180	25	57	171	184	40	90				
S	60	190	200	178	192	20	55	180	193	40	90					178	192	35	77	180	195	60	121					176	190	25	57	180	193	40	90	180	195	40	105
T	60	200	220					186	215	40	90					183	213	35	77	189	211	60	121									186	215	40	90	190	215	40	105
U	60	220	240					205	234	40	90					203	231	35	77	204	233	60	121									205	234	40	90	208	239	50	110
V	60	240	260					224	252	40	90					221	250	35	77	223	252	60	121									224	252	40	105	224	252	60	121
W	60	210	230	198	225	20	45													195	224	60	125													199	227	50	110
BD	60																							85	99	15	40												
Y	60	70	80																					62	76	15	40												
BE	60																							90	104	15	40												
BA	60	290	310					268	298	50	100																												
BB	60	110	120																													268	298	50	100				
TV	60	240	260																					101	115	15	40												
TW	60	210	230																	218	243	60	121																
TP	60	170	180					162	175	70	100									195	224	60	121																
COIL RESISTANCE @ 25°C (OHMS) REFERENCE				1, 620				6, 050				14, 820				4, 080				11, 600				830				2, 600				5, 550				9, 400			

MOUNTING POSITIONS



ISSUED MARCH 1, 1988
REVISED APRIL 17, 1991
REV.ET-92182 96-4-9
REV.ET-93701 98-3-11
REV.ET-96912 2005-10-04
REV.ET-97023 2006-02-13
REV.ET-97084 2006-04-25

GE MOTOR STARTING RELAY (3ARR3, 3ARR22) DATA

74-407791
SH.2

CALIBRATION VALUES ARE BASED ON AVERAGE COIL COPPER TEMPERATURES OF: COLD 35°C
HOT 95°C.

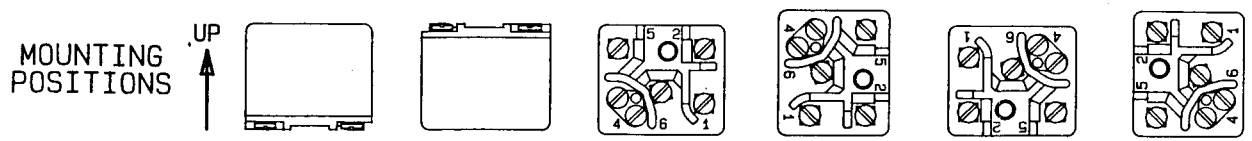
CUSTOMER COLD PICK-UP AND DROP-OUT FOR EACH COIL GROUP

COIL GROUPS ARE U.L. CLASS B RATING AND VDE RECOGNIZED.
(U.L. FILE SA639 AND VDE LICENSE 40014098)

CALIBRATION IDENTIFICATION	FREQUENCY (HERTZ)	HOT PICK-UP VOLTS		MAXIMUM COIL VOLTAGES FOR SPECIFIED MAXIMUM TEMPERATURE RISE																											
				GROUP 2, 12 151V-Δ 80°C 132V-Δ 60°C				GROUP 3, 13 299V-Δ 80°C 261V-Δ 60°C				GROUP 4, 14 452V-Δ 80°C 395V-Δ 60°C				GROUP 5, 15 228V-Δ 80°C 199V-Δ 60°C				GROUP 6, 16 378V-Δ 80°C 343V-Δ 60°C				GROUP 7, 17 117V-Δ 80°C 102V-Δ 60°C				GROUP 8, 18 193V-Δ 80°C 168V-Δ 60°C				GROUP 9, 19 270V-Δ 80°C 234V-Δ 60°C				GROUP 10, 20 338V-Δ 80°C 296V-Δ 60°C			
				PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT	
				MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
AA	50	260	280					243	271	40	90	239	268	60	135	240	269	35	77	242	272	60	121					238	266	25	64	243	271	40	90	239	270	50	110
AB	50	280	300					261	290	50	100	258	287	60	135	259	288	35	77	262	290	60	121					256	285	25	65	261	290	50	100	260	289	50	110
AC	50	300	320					280	309	55	100	277	305	60	135	278	306	35	77	280	310	60	121					275	303	25	65	280	309	55	100	279	308	50	110
AD	50	320	340					299	327	50	100	295	324	60	135	296	325	35	77	300	328	60	121					293	324	25	65	299	327	50	100	298	326	50	110
AE	50	340	360					317	345	50	100	314	342	60	135	315	343	35	77	318	347	60	121									317	345	50	100	316	344	50	110
AF	50	350	370					326	354	50	100	323	352	60	135	323	352	35	77	328	356	60	121									326	354	50	100	325	354	50	110
AG	50	360	380					335	364	50	100	332	361	60	135	333	363	35	77	337	366	60	121									335	364	50	100	334	363	50	110
AH	50	365	395									336	376	70	150																								
AJ	50	120	130	111	124	20	45																	111	125	15	40												
AK	50	130	140	120	134	20	45									120	134	35	77					121	134	15	40	120	134	35	57								
AL	50	140	150	130	144	20	45	132	148	40	90					130	143	35	77					130	143	15	40	129	142	25	57								
AM	50	150	160	140	153	20	45	142	157	40	90					140	152	35	77					139	153	15	45	139	152	25	57								
AN	50	160	170	149	163	20	45	152	166	40	90					150	163	35	77					149	163	15	40	149	162	25	57								
AP	50	170	180	159	172	20	45	162	175	40	90					159	172	35	77									158	171	25	57	162	175	40	90				
AR	50	180	190	168	182	20	45	171	184	40	90					168	182	35	77									167	180	25	57	171	184	40	90				
AS	50	190	200	178	192	20	45	180	193	40	90					178	192	35	77	180	195	60	121					176	190	25	57	180	193	40	90	180	195	40	105
AT	50	200	220					186	215	40	90					183	213	35	77	186	214	60	121									186	215	40	90	190	215	40	105
AU	50	220	240					205	234	40	90					203	231	35	77	204	233	60	121									205	234	40	90	208	239	50	110
AV	50	240	260					224	252	40	90					221	250	35	77	223	252	60	121									224	252	40	90				
AW	50	210	230	198	225	20	45													195	224	60	125																
CD	50																							85	99	15	40												
AY	50	70	80																					62	76	15	40												
CE	50																							90	104	15	40												
CA	50	290	310					268	298	50	100																					268	298	50	100				
CB	50	110	120																					101	115	15	40												
COIL RESISTANCE @ 25°C (OHMS) REFERENCE				1, 620				6, 050				14, 820				4, 080				11, 600				830				2, 600				5, 550				9, 400			

AER
CQ
F

MOUNTING POSITIONS



ISSUED MARCH 1, 1988
REVISED APRIL 17, 1991
REV.ET-92182 96-4-9
REV.ET-93701 98-3-11
REV.ET-96912 2005-10-04
REV.ET-97023 2006-02-13
REV.ET-97084 2006-04-25

GE MOTOR STARTING RELAY (3ARR3, 3ARR22) DATA

74-407791
SH.3

CALIBRATION VALUES ARE BASED ON AVERAGE COIL COPPER TEMPERATURES OF: COLD 35°C HOT 95°C.

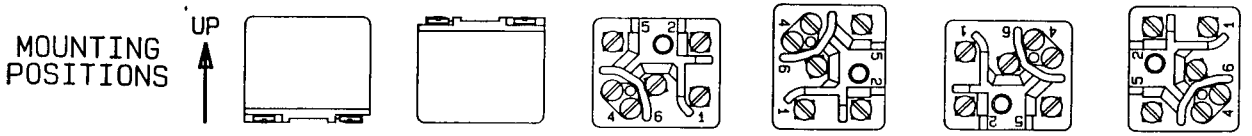
CUSTOMER COLD PICK-UP AND DROP-OUT FOR EACH COIL GROUP

COIL GROUPS ARE U.L. CLASS B RATING AND VDE RECOGNIZED. (U.L. FILE SA639 AND VDE LICENSE 40014098)

CALIBRATION IDENTIFICATION	FREQUENCY (HERTZ)	HOT PICK-UP VOLTS		MAXIMUM COIL VOLTAGES FOR SPECIFIED MAXIMUM TEMPERATURE RISE																													
				GROUP 21, 41 148V-Δ 80°C 130V-Δ 60°C				GROUP 22, 42 194V-Δ 80°C 170V-Δ 60°C				GROUP 23, 43 292V-Δ 80°C 256V-Δ 60°C				GROUP 24, 44 383V-Δ 80°C 336V-Δ 60°C				GROUP 25, 45 450V-Δ 80°C 395V-Δ 60°C				GROUP 26, 46 479V-Δ 80°C 420V-Δ 60°C				GROUP 27, 47 564V-Δ 80°C 495V-Δ 60°C				GROUP 28 530V-Δ 80°C 465V-Δ 60°C							
				PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT	
				MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
A	60	260	280									240	269	45	95	243	271	55	125	242	272	60	140	242	272	75	150	239	268	75	170	239	268	75	170
B	60	280	300									259	288	45	95	261	290	55	125	262	290	60	140	262	290	75	150	258	287	75	170	258	287	75	170
C	60	300	320									278	306	45	115	280	309	55	125	279	310	60	140	280	310	75	160	277	305	75	170	277	305	75	170
D	60	320	340									296	325	45	115	299	327	55	125	300	328	60	140	300	328	75	160	295	324	75	170	295	324	75	170
E	60	340	360									315	343	45	115	317	345	55	125	318	347	60	140	318	347	75	160	314	342	75	180	314	342	75	180
F	60	350	370									323	352	45	115	326	354	55	125	328	356	60	140	328	356	75	160	323	352	75	180	323	352	75	180
G	60	360	380									333	363	45	115	335	364	55	125	337	366	60	140	337	366	75	160	332	361	75	180	332	361	75	180
H	60	365	395													340	370	55	125	342	370	60	140	340	370	75	160								
J	60	120	130	111	125	20	50	111	124	30	65																								
K	60	130	140	121	134	20	50	120	134	30	65																								
L	60	140	150	130	143	20	55	130	144	30	65																								
M	60	150	160	139	153	20	55	140	153	30	65	136	150	45	90																				
N	60	160	170	149	163	20	55	149	163	30	65	150	163	45	90	153	165	55	115																
P	60	170	180					159	172	30	65	159	172	45	90	162	175	55	115																
R	60	180	190					168	182	30	65	168	182	45	95	171	185	55	115																
S	60	190	200					178	192	30	75	178	192	45	95	180	193	55	115	189	205	60	130												
T	60	200	220									185	213	45	95	186	215	55	115	189	211	60	130												
U	60	220	240									203	231	45	95	205	234	55	115	204	233	60	130	204	233	75	150								
V	60	240	260									221	250	45	95	224	252	55	125	223	252	75	150	223	252	75	150								
W	60	210	230																					195	224	75	150								
X	60																																		
Y	60	70	80	62	76	20	45																												
Z	60																																		
BA	60	290	310													267	297	55	125																
BB	60	110	120	101	115	20	45																												
BD	60			85	99	20	45																												
BE	60			90	104	20	45																												
COIL RESISTANCE @ 25°C (OHMS) REFERENCE				1, 350				2, 200				5, 220				8, 000				11, 600				13, 260				15, 900				17, 660			

AE
(2)
F

MOUNTING POSITIONS



ISSUED MARCH 1, 1988
REV.ET-89412 JUNE 4, 1993
REV.ET-92182 96-4-9
REV.ET-93701 98-3-11
REV.ET-96912 2005-10-04
REV.ET-97084 2006-04-25

GE MOTOR STARTING RELAY (3ARR3, 3ARR22) DATA

CALIBRATION VALUES ARE BASED ON AVERAGE COIL COPPER TEMPERATURES OF: COLD 35°C
HOT 95°C.

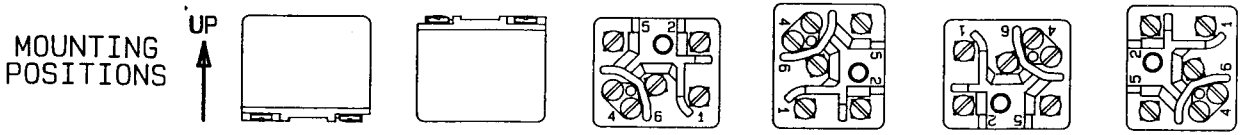
CUSTOMER COLD PICK-UP AND DROP-OUT FOR EACH COIL GROUP

COIL GROUPS ARE U.L. CLASS B RATING AND VDE RECOGNIZED.
(U.L. FILE SA639 AND VDE LICENSE 40014098)

CALIBRATION IDENTIFICATION	FREQUENCY (HERTZ)	HOT PICK-UP VOLTS		MAXIMUM COIL VOLTAGES FOR SPECIFIED MAXIMUM TEMPERATURE RISE																													
				GROUP 21, 41 133V-Δ 80°C 117V-Δ 60°C				GROUP 22, 42 174V-Δ 80°C 153V-Δ 60°C				GROUP 23, 43 262V-Δ 80°C 230V-Δ 60°C				GROUP 24, 44 344V-Δ 80°C 302V-Δ 60°C				GROUP 25, 45 406V-Δ 80°C 356V-Δ 60°C				GROUP 26, 46 415V-Δ 80°C 359V-Δ 60°C				GROUP 27, 47 470V-Δ 80°C 407V-Δ 60°C				GROUP 28 530V-Δ 80°C 465V-Δ 60°C							
				PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT		PICK-UP		DROP-OUT	
				MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
AA	50	260	280									240	269	45	109	243	271	55	119	242	272	60	133	242	272	75	152	239	268	75	170	239	268	75	170				
AB	50	280	300									259	288	45	109	261	290	55	119	262	290	60	133	262	290	75	152	258	287	75	170	258	287	75	170				
AC	50	300	320									278	306	45	129	280	309	55	138	279	310	60	133	280	310	75	152	277	305	75	170	277	305	75	170				
AD	50	320	340													299	327	55	138	300	328	60	154	300	328	75	152	295	324	75	170	295	324	75	170				
AE	50	340	360													310	340	75	140	318	347	60	154	318	347	75	152	314	342	75	180	314	342	75	180				
AF	50	350	370																	328	356	60	154	328	356	75	152	323	352	75	180	323	352	75	180				
AG	50	360	380																	337	366	60	154	337	366	75	181	332	361	75	180	332	361	75	180				
AH	50	365	395																	342	370	60	154	340	370	60	154												
AJ	50	120	130	111	125	20	52	111	124	30	62																												
AK	50	130	140	121	134	20	52	120	134	30	62																												
AL	50	140	150	130	143	20	58	130	144	30	62																												
AM	50	150	160					140	153	30	71	136	150	45	90																								
AN	50	160	170					149	163	30	71	150	163	45	90																								
AP	50	170	180					159	172	30	71	159	172	45	90	162	175	55	119																				
AR	50	180	190									168	182	45	90	171	184	55	119																				
AS	50	190	200									178	192	45	90	180	193	55	119	180	195	60	133																
AT	50	200	220									185	213	45	90	186	215	55	119	186	214	60	133																
AU	50	220	240									203	231	45	109	205	234	55	119	204	233	60	133	204	233	75	120												
AV	50	240	260									221	250	45	109	224	252	55	119	223	252	60	133	223	252	75	152												
AW	50	210	230																					195	224	75	152												
AX	50																																						
AY	50	70	80	62	76	20	48																																
AZ	50																																						
COIL RESISTANCE @ 25°C (OHMS) REFERENCE				1, 350				2, 200				5, 220				8, 000				11, 600				13, 260				15, 900				17, 660							

AER
©
F

MOUNTING POSITIONS



ISSUED MARCH 1, 1988
REVISED DECEMBER 4, 1990
REV.ET-92182 96-4-9
REV.ET-93701 98-3-11
REV.ET-96912 2005-10-04
REV.ET-97084 2006-04-25