NOTA: Acest desen nu constituie o obligatie de aplicare de către contractor.
El reprezintă doar un exemplu de circuit de cale utilizat la CFR si nu trebuie aplicat ca atare.

NOTE: It is not compulsory for the contractor to apply this drawing.
It is only an example of track circuit in use at CFR and shall not be applied as such.

D					
C					
B					
A					
Indice Index	Data Date	Modificare Modification/Revision	Proiectant Designer	Aprobat Consultant Approved Consultant	Aprobat CFR Approved CFR

GUVERNUL ROMANIEI
ROMANIAN GOVERNMENT

PROIECT FINANŢAT DE UNIUNEA EUROPEANĂ
EUROPEAN UNION FINANCED PROJECT

CLIENT / CLIENT

C.N.C.F. "C.F.R." - S.A.

ITALFERR
GRUPPO FERROVIE DELLO STATO
Joint Venture leader

Scott Wilson

OBERMEYER
PLANEN + BERATEN GmbH

TECNIC
Consulting Engineers

CONSULTANT / CONSULTANT			Data Date	Semnătură Signature
Aprobat Approved	Şef proiect Project manager	R. Liuzza	12.12.2011	
Aprobat Approved	Coordonator Secţiune 1 Section 1 Coordinator	C. Gambelli	12.12.2011	
Verificat Checked	Expert Cheie Key Expert	P. Amodio	12.12.2011	

SUBCONTRACTANT / SUBCONTRACTOR

AREX COMPANY

Aprobat Approved	Responsabil Subconsultant Subconsultant Responsible	A. Stanciu - Dinulescu	12.12.2011	
Întocmit Elaborated	Proiectant Designer	ing. Juganaru Adriana	12.12.2011	

Reabilitarea liniei de cale ferata Braşov - Simeria, parte componentă a coridorului IV Pan European, pentru circulaţia trenurilor cu viteza maximă de 160 km/h, Tronsonul : Braşov - Sighişoara

Rehabilitation of the railway line Braşov - Simeria, component Part of the IV Pan-European Corridor, for the trains circulation with maximum speed of 160 km/h, Section : Braşov - Sighişoara

Proiect/Project
2004/RO/16/P/PA/003

Faza / Phase:
D.E. / D.D.

Denumire desen / Drawing Title :

Statia / Station RACOS
Fise de montaj rama aparataj receptie 3
Wiring diagrams for receiving equipment frame 3

Codificare / Codification System	**Scara / Scale** **Fără / No scale**	**LOT / LOT**	**Nr. / No** **01 / 10**

EA51 01 E 11 BX SE 01 1 2 017 1

420x297=0.125mp

RAMA APARATAJ RECEPTIE 3(FI3)

	1	2	3	4	5	6	7	8	9
9	2 CI	① 2 BDE	IV CI	① IV BDE					
8	056 CI	② 056 BDE	(30−32)a Sil	② (30−32)a BDE	(30−32)b Sil	② (30−32)b BDE	066 CI	④ 066 BDE	
7	(20−24)a Sil	④ (20−24)a BDE	(20−24)b Sil	④ (20−24)b BDE	(20−24)c Sil	④ (20−24)c BDE	(20−24)d Sil	④ (20−24)d BDE	
6	8−16 Sil	② 8−16 BDE	10−14 Sil	④ 10−14 BDE	18 Sil	② 18 BDE	26−28 Sil	③ 26−28 BDE	
5	2 Sil	② 2 BDE	064 CI	③ 064 BDE	4−6 Sil	③ 4−6 BDE	054 CI	④ 054 BDE	
4	YCF−1AD CI	② YCF−1AD BDE	034 CI	③ 034 BDE	YC−1AD CI	④ YC−1AD BDE	044 CI	② 044 BDE	
	FI3−FATA					FI3−SPATE			
3	31 8−16 Si FC−B	32 10−14 Si FC−B	33 18 Si FC−B	34 26−28 Si FC−B		34A	33A	32A IV C FC−B	31A 2 C FC−B
2	21 2 Si FC−B	22 064 C FC−B	23 4−6 Si FC−B	24 054 C FC−B		24A 066 C FC−B	23A (30−32)b Si FC−B	22A (30−32)a Si FC−B	21A 056 C FC−B
1	11 YCF−1AD FC−B	12 034 C FC−B	13 YC−1AD FC−B	14 044 C FC−B		14A (20−24)d Si FC−B	13A (20−24)c Si FC−B	12A (20−24)b Si FC−B	11A (20−24)a Si FC−B

01	011 IP−2 YCF−1AD/034	012 IP−2 YC−1AD/044	013 IP−2 2/064	014 IP−2 4−6/054	015 IP−2 8−16/10−14	016 IP−2 18/26−28		016A	015A IP−2 2/IV	014A IP−2 (30−32)b/066	013A IP−2 056/(30−32)a	012A IP−2 (20−24)c/(20−24)d	011A IP−2 (20−24)a/(20−24)b

001	002	003	004	005	006	007	008	009	0010	0011	0012
12x100Ω/0,3A											

0012A	0011A	0010A	009A	008A	007A	006A	005A	004A	003A	002A	001A
10x100Ω/0,3A											

Statia: RACOS

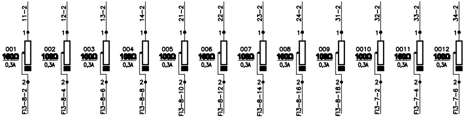
FI3−FATA

31	8−16 Si	32	10−14 Si	33	18 Si	34	26−28 Si
1	FI3−8−17	1	FI3−7−1	1	FI3−7−3	1	FI3−7−5
2	009−1	2	0010−1	2	0011−1	2	0012−1
3	015−1 61−11	3	015−5 63−11	3	016−1 65−11	3	016−5 67−11
4	015−2 61−71	4	015−6 63−71	4	016−2 65−71	4	016−6 67−71

21	2 Si	22	064 C	23	4−6 Si	24	054 C
1	FI3−8−9	1	FI3−8−11	1	FI3−8−13	1	FI3−8−15
2	005−1	2	006−1	2	007−1	2	008−1
3	013−1 51−11	3	013−5 53−11	3	014−1 55−11	3	014−5 57−11
4	013−2 51−71	4	013−6 53−71	4	014−2 55−71	4	014−6 57−71

11	YCF−1AD	12	034 C	13	YC−1AD	14	044 C
1	FI3−8−1	1	FI3−8−3	1	FI3−8−5	1	FI3−8−7
2	001−1	2	002−1	2	003−1	2	004−1
3	011−1 41−11	3	011−5 43−11	3	012−1 45−11	3	012−5 47−11
4	011−2 41−71	4	011−6 43−71	4	012−2 45−71	4	012−6 47−71

011	YCF−1AD/034	012	YC−1AD/044	013	2/064	014	4−6/054	015	8−16/10−14	016	18/26−28
1	11−3	1	13−3	1	21−3	1	23−3	1	31−3	1	33−3
2	11−4	2	13−4	2	21−4	2	23−4	2	31−4	2	33−4
3	FI3−6−1	3	FI3−6−5	3	FI3−6−9	3	FI3−6−13	3	FI3−6−17	3	FI3−6−21
4	8 FI3−6−33	4	8 011−8	4	8 012−8	4	8 013−8	4	8 014−8	4	8 015−8
5	12−3	5	14−3	5	22−3	5	24−3	5	32−3	5	34−3
6	12−4	6	14−4	6	22−4	6	24−4	6	32−4	6	34−4
7	FI3−6−3	7	FI3−6−7	7	FI3−6−11	7	FI3−6−15	7	FI3−6−19	7	FI3−6−23
8	4 012−4	8	4 013−4	8	4 014−4	8	4 015−4	8	4 016−4	8	4 FI3−6−33


11−2
12−2
13−2
14−2
21−2
22−2
23−2
24−2
31−2
32−2
33−2
34−2
1
001 100Ω 0,3A
002 100Ω 0,3A
003 100Ω 0,3A
004 100Ω 0,3A
005 100Ω 0,3A
006 100Ω 0,3A
007 100Ω 0,3A
008 100Ω 0,3A
009 100Ω 0,3A
0010 100Ω 0,3A
0011 100Ω 0,3A
0012 100Ω 0,3A
2
FI3−8−2
FI3−8−4
FI3−8−6
FI3−8−8
FI3−8−10
FI3−8−12
FI3−8−14
FI3−8−16
FI3−8−18
FI3−7−2
FI3−7−4
FI3−7−6

Statia: RACOS

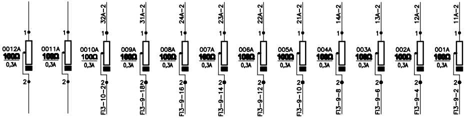
FI3—SPATE

34A		33A		32A	IV Si	31A	2 C
1		1		1	FI3-10-1	1	FI3-9-17
2		2		2	0010A-1	2	009A-1
3		3		3	015A-5 93-11	3	015A-1 91-11
4		4		4	015A-2 93-71	4	015A-2 91-71

24A	066 C	23A	(30-32)b Si	22A	(30-32)a Si	21A	056 C
1	FI3-9-15	1	FI3-9-13	1	FI3-9-11	1	FI3-9-9
2	008A-1	2	007A-1	2	006A-1	2	005A-1
3	014A-5 87-11	3	014A-1 85-11	3	013A-5 83-11	3	013A-1 81-11
4	014A-6 87-71	4	014A-2 85-71	4	013A-6 83-71	4	013A-2 81-71

14A	(20-24)c Si	13A	(20-24)c Si	12A	(20-24)b Si	11A	(20-24)a Si
1	FI3-9-7	1	FI3-9-5	1	FI3-9-3	1	FI3-9-1
2	004A-1	2	003A-1	2	002A-1	2	001A-1
3	012A-5 77-11	3	012A-1 75-11	3	011A-5 73-11	3	011A-1 71-11
4	012A-6 77-71	4	012A-2 75-71	4	011A-6 73-71	4	011A-2 71-71

016A		015A	2/IV	014A	(30-32)b/066	013A	056/(30-32)a	012A	(20-24)c/(20-24)d	011A	(20-24)a/(20-24)b
1		1	31A-3	1	23A-3	1	21A-3	1	13A-3	1	11A-3
2		2	31A-4	2	23A-4	2	21A-4	2	13A-4	2	11A-4
3		3	FI3-6-12	3	FI3-6-8	3	FI3-6-4	3	FI3-6-29	3	FI3-6-25
4		4	8 014A-8	4	8 013A-8	4	8 012A-8	4	8 011A-8	4	8 FI3-6-35
5		5	32A-3	5	24A-3	5	22A-3	5	14A-3	5	12A-3
6		6	32A-4	6	24A-4	6	22A-4	6	14A-4	6	12A-4
7		7	FI3-6-14	7	FI3-6-10	7	FI3-6-6	7	FI3-6-2	7	FI3-6-27
8		8	4	8	4 015A-4	8	4 014A-4	8	4 013A-4	8	4 012A-4


0012A
100Ω
0,3A
1
2
0011A
100Ω
0,3A
1
2
32A-2
0010A
100Ω
0,3A
1
2
FI3-10-22
31A-2
009A
100Ω
0,3A
1
2
FI3-9-18
24A-2
008A
100Ω
0,3A
1
2
FI3-9-16
23A-2
007A
100Ω
0,3A
1
2
FI3-9-14
22A-2
006A
100Ω
0,3A
1
2
FI3-9-12
21A-2
005A
100Ω
0,3A
1
2
FI3-9-10
14A-2
004A
100Ω
0,3A
1
2
FI3-9-8
13A-2
003A
100Ω
0,3A
1
2
FI3-9-6
12A-2
002A
100Ω
0,3A
1
2
FI3-9-4
11A-2
001A
100Ω
0,3A
1
2
FI3-9-2

RANDUL 4,5

59		58		57		56		55		54	
			054 BDE		054 CI		4-6 BDE		4-6 Sil		064 BDE
		12	0x220			12	0x220			12	0x220
		11	FI3-4-30	11	24-3	11	FI3-4-26	11	23-3	11	FI3-4-22
				13	OS			13	OS		
		32	7-33			32	5-33			32	3-33
		31	7-53			31	5-53			31	3-53
				33	8-32			33	6-32		
		52	+24S4			52	+24S3			52	+24S3
		51	Ax220			51	Ax220			51	Ax220
				53	8-31			53	6-31		
		72	OS			72	OS			72	OS
		71	FI3-4-32	71	24-4	71	FI3-4-28	71	23-4	71	FI3-4-24

49		48		47		46		45		44	
			044 BDE		044 CI		YC-1AD BDE		YC-1AD CI		034 BDE
		12	0x220			12	0x220			12	0x220
		11	FI3-4-14	11	14-3	11	FI3-4-10	11	13-3	11	FI3- 4-6
				13	OS			13	OS		
		32	7-33			32	5-33			32	3-33
		31	7-53			31	5-53			31	3-53
				33	8-32			33	6-32		
		52	+24S2			52	+24S4			52	+24S3
		51	Ax220			51	Ax220			51	Ax220
				53	8-31			53	6-31		
		72	OS			72	OS			72	OS
		71	FI3-4-16	71	14-4	71	FI3-4-12	71	13-4	71	FI3-4-8

53		52		51	
	064 Cl		2 BDE		2 Sil
		12	0x220		
11	22-3	11	FI3-4-18	11	21-3
13	OS			13	OS
		32	1-33		
		31	1-53		
33	4-32			33	2-32
		52	+24S2		
		51	Ax220		
53	4-31			53	2-31
		72	OS		
71	22-4	71	FI3-4-20	71	21-4

43		42		41	
	034 Cl		YCF-1AD BDE		YCF-1AD Cl
		12	0x220		
11	12-3	11	FI3-4-2	11	11-3
13	OS			13	OS
		32	1-33		
		31	1-53		
33	4-32			33	2-32
		52	+24S2		
		51	Ax220		
53	4-31			53	2-31
		72	OS		
71	12-4	71	FI3-4-4	71	11-4

RANDUL 6,7

79		78		77		76		75		74		73		72		71	
			(20-24)d BDE		(20-24)d Sil		(20-24)c BDE		(20-24)c Sil		(20-24)b BDE		(20-24)b Sil		(20-24)a BDE		(20-24)a Sil
		12	0x220			12	0x220			12	0x220			12	0x220		
		11	FI3-5-25	11	14A-3	11	FI3-5-21	11	13A-3	11	FI3-4-17	11	12A-3	11	FI3-5-13	11	11A-3
				13	OS			13	OS			13	OS			13	OS
		32	7-33			32	5-33			32	3-33			32	1-33		
		31	7-53			31	5-53			31	3-53			31	1-53		
				33	8-32			33	6-32			33	4-32			33	2-32
		52	+24S4			52	+24S4			52	+24S4			52	+24S4		
		51	Ax220			51	Ax220			51	Ax220			51	Ax220		
				53	8-31			53	6-31			53	4-31			53	2-31
		72	OS			72	OS			72	OS			72	OS		
		71	FI3-5-27	71	14A-4	71	FI3-5-23	71	13A-4	71	FI3-5-19	71	12A-4	71	FI3-5-15	71	11A-4

69		68		67		66		65		64		63		62		61	
			26-28 BDE		26-28 Sil		18 BDE		18 Sil		10-14 BDE		10-14 Sil		8-16 BDE		8-16 Sil
		12	0x220			12	0x220			12	0x220			12	0x220		
		11	FI3-5-9	11	34-3	11	FI3-5-5	11	33-3	11	FI3-5-1	11	32-3	11	FI3-4-34	11	31-3
				13	OS			13	OS			13	OS			13	OS
		32	7-33			32	5-33			32	3-33			32	1-33		
		31	7-53			31	5-53			31	3-53			31	1-53		
				33	8-32			33	6-32			33	4-32			33	2-32
		52	+24S3			52	+24S2			52	+24S4			52	+24S2		
		51	Ax220			51	Ax220			51	Ax220			51	Ax220		
				53	8-31			53	6-31			53	4-31			53	2-31
		72	OS			72	OS			72	OS			72	OS		
		71	FI3-5-11	71	34-4	71	FI3-5-7	71	33-4	71	FI3-5-3	71	32-4	71	FI3-4-36	71	31-4

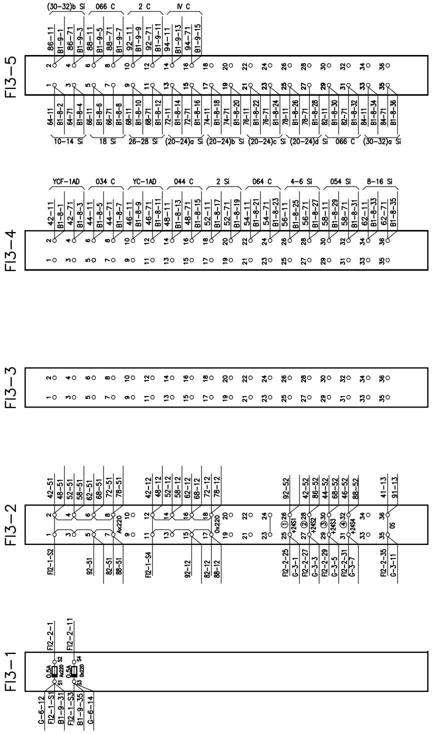
Statia: RACOS

Sta

RANDUL 8.9

99		98		97		96		95		94		93		92		91	
											IV BDE		IV CI		2 BDE		2 CI
		12				12				12	0x220			12	0x220		
		11		11		11		11		11	FI3-5-14	11	32A-3	11	FI3-5-10	11	31A-3
				13				13				13	OS			13	OS
		32				32				32	3-33			32	1-33		
		31				31				31	3-53			31	1-53		
				33				33				33	4-32			33	2-32
		52				52				52	+24S1			52	+24S1		
		51				51				51	Ax220			51	Ax220		
				53				53				53	4-31			53	2-31
		72				72				72	OS			72	OS		
		71		71		71		71		71	FI3-5-16	71	32A-4	71	FI3-5-12	71	31A-4

89		88		87		86		85		84		83		82		81	
			066 BDE		066 CI		(30-32)b BDE		(30-32)b Sil		(30-32)a BDE		(30-32)a CI		056 BDE		056 CI
		12	0x220			12	0x220			12	0x220			12	0x220		
		11	FI3-5-6	11	24A-3	11	FI3-5-2	11	23A-3	11	FI3-5-33	11	22A-3	11	FI3-5-29	11	21A-3
				13	OS			13	OS			13	OS			13	OS
		32	7-33			32	5-33			32	3-33			32	1-33		
		31	7-53			31	5-53			31	3-53			31	1-53		
				33	8-32			33	6-32			33	4-32			33	2-32
		52	+24S4			52	+24S2			52	+24S2			52	+24S2		
		51	Ax220			51	Ax220			51	Ax220			51	Ax220		
				53	8-31			53	6-31			53	4-31			53	2-31
		72	OS			72	OS			72	OS			72	OS		
		71	FI3-5-8	71	24A-4	71	FI3-5-4	71	23A-4	71	FI3-5-35	71	22A-4	71	FI3-5-31	71	21A-4


FI3-5
(30-32)b Si
066 C
2 C
IV C
86-11
B1-9-1
86-71
B1-9-3
88-11
B1-9-5
88-71
B1-9-7
92-11
B1-9-9
92-71
B1-9-11
94-11
B1-9-13
94-71
B1-9-15
64-11
B1-8-2
64-71
B1-8-4
66-11
B1-8-6
66-71
B1-8-8
68-11
B1-8-10
68-71
B1-8-12
72-11
B1-8-14
72-71
B1-8-16
74-11
B1-8-18
74-71
B1-8-20
76-11
B1-8-22
76-71
B1-8-24
78-11
B1-8-26
78-71
B1-8-28
82-11
B1-8-30
82-71
B1-8-32
84-11
B1-8-34
84-71
B1-8-36
10-14 Si
18 Si
26-28 Si
(20-24)a Si
(20-24)b Si
(20-24)c Si
(20-24)d Si
066 C
(30-32)a Si
FI3-4
YCF-1AD
034 C
YC-1AD
044 C
2 Si
064 C
4-6 Si
054 Si
8-16 Si
42-11
B1-8-1
42-71
B1-8-3
44-11
B1-8-5
44-71
B1-8-7
46-11
B1-8-9
46-71
B1-8-11
48-11
B1-8-13
48-71
B1-8-15
52-11
B1-8-17
52-71
B1-8-19
54-11
B1-8-21
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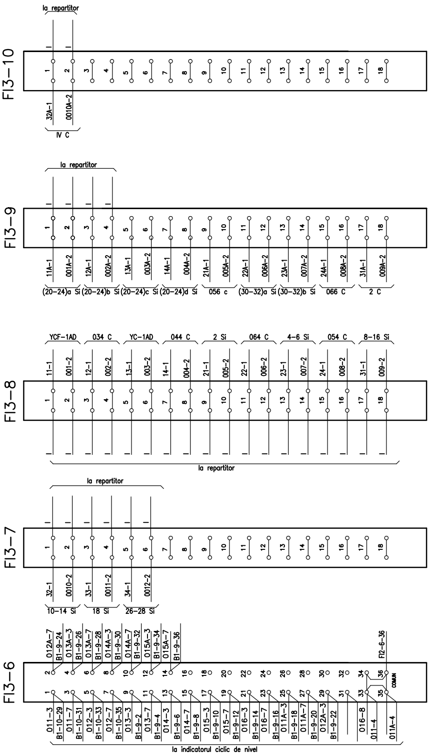
B1-8-27
58-11
B1-8-29
58-71
B1-8-31
62-11
B1-8-33
62-71
B1-8-35
FI3-3
FI3-2
42-51
48-51
52-51
58-51
62-51
68-51
72-51
78-51
42-12
48-12
52-12
58-12
62-12
68-12
72-12
78-12
92-52
42-52
86-52
44-52
68-52
46-52
88-52
41-13
91-13
Ax220
0x220
① +24S1
② +24S2
③ +24S3
④ +24S4
0S
FI2-1-S2
92-51
82-51
88-51
FI2-1-S4
92-12
82-12
88-12
FI2-2-25
G-3-1
FI2-2-27
G-3-3
FI2-2-29
G-3-5
FI2-2-31
G-3-7
FI2-2-35
G-3-11
FI3-1
FI2-2-1
FI2-2-11
S2
S4
0,5A
Ax220
0,5A
0x220
S1
S3
G-6-12
FI2-1-S1
B1-9-31
FI2-1-S3
B1-9-35
G-6-14


la repartitor
F13−10
32A−1
0010A−2
IV C
la repartitor
F13−9
11A−1
001A−2
12A−1
002A−2
13A−1
003A−2
14A−1
004A−2
21A−1
005A−2
22A−1
006A−2
23A−1
007A−2
24A−1
008A−2
31A−1
009A−2
(20−24)a Si
(20−24)b Si
(20−24)c Si
(20−24)d Si
056 c
(30−32)a Si
(30−32)b Si
066 C
2 C
YCF−1AD
034 C
YC−1AD
044 C
2 Si
064 C
4−6 Si
054 C
8−16 Si
11−1
001−2
12−1
002−2
13−1
003−2
14−1
004−2
21−1
005−2
22−1
006−2
23−1
007−2
24−1
008−2
31−1
009−2
F13−8
la repartitor
la repartitor
F13−7
32−1
0010−2
33−1
0011−2
34−1
0012−2
10−14 Si
18 Si
26−28 Si
012A−7
B1−9−24
013A−3
B1−9−26
013A−7
B1−9−28
014A−3
B1−9−30
014A−7
B1−9−32
015A−3
B1−9−34
015A−7
B1−9−36
F12−6−36
F13−6
COMUN
011−3
B1−10−29
011−7
B1−10−31
012−3
B1−10−33
012−7
B1−10−35
013−3
B1−9−2
013−7
B1−9−4
014−3
B1−9−6
014−7
B1−9−8
015−3
B1−9−10
015−7
B1−9−12
016−3
B1−9−14
016−7
B1−9−16
011A−3
B1−9−18
011A−7
B1−9−20
012A−3
B1−9−22
016−8
011−4
011A−4
la indicatorul ciclic de nivel

BUCLE TENSIUNI

+24S1	+24S2	+24S3	+24S4	Ax220	0x220	0S
F13−2−26	F13−2−28	F13−2−30	F13−2−32	F13−2−2	F13−2−12	F13−2−36
92−52	42−52	44−52	46−52	42−51	42−12	41−13
94−52	48−52	54−52	58−52	44−51	44−12	42−72
	52−52	56−52	64−52	46−51	46−12	43−13
	62−52	68−52	72−52	48−51	48−12	44−72
	66−52		74−52	F13−2−2	F13−2−12	45−13
	82−52		76−52	F13−2−4	F13−2−14	46−72
	84−52		78−52	52−51	52−12	47−13
	86−52		88−52	54−51	54−12	48−72
				56−51	56−12	58−72
				58−51	58−12	57−13
				F13−2−4	F13−2−14	56−72
				F13−2−6	F13−2−16	55−13
				62−51	62−12	54−72
				64−51	64−12	53−13
				66−51	66−12	52−72
				68−51	68−12	51−13
				F13−2−6	F13−2−16	61−13
				F13−2−8	F13−2−18	62−72
				72−51	72−12	63−13
				74−51	74−12	64−72
				76−51	76−12	65−13
				78−51	78−12	66−72
				F13−2−8	F13−2−18	67−13
				F13−2−10	F13−2−20	68−72
				82−51	82−12	78−72
				84−51	84−12	77−13
				86−51	86−12	76−72
				88−51	88−12	75−13
				F13−2−10	F13−2−20	74−72
				F13−2−12	F13−2−22	73−13
				92−51	92−12	72−72
				94−51	94−12	71−13
						81−13
						82−72
						83−13
						84−72
						85−13
						86−72
						87−13
						88−72
						94−72
						93−13
						92−72
						91−13
	F13−2−28	F13−2−30	F13−2−32			F13−2−36