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भारत सरकार - रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ - 226011
Government of India - Ministry of Railways
Research, Designs & Standards Organization,
LUCKNOW - 226011

54-1048

सं. ई. एल./11.5.5/5

दिनांक: 07.02.2011

16

मुख्य विद्युत अभियंता,

1. उत्तर रेलवे, बड़ोदा हाऊस, नई दिल्ली-110 001
2. पूर्व-मध्य रेलवे, हाजीपुर-844 101
3. मध्य रेलवे, मुम्बई सीएसटी -400 001
4. दक्षिण मध्य रेलवे, रेल निलायम, सिकंदराबाद-500 371
5. पश्चिम मध्य रेलवे, जबलपुर-482 001
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7. दक्षिण पूर्व रेलवे, गार्डन रीच, कोलकाता-700 043
8. चितरंजन रेलइंजन कारखाना, चितरंजन - 713 331

विषय : Modification Sheet for 'Replacement of ECSX make 24 MHz crystals by FOX make crystals in electronic cards of three phase electric locomotives'.

उपरोक्त विषय में इस कार्यालय द्वारा जारी माडीफिकेशन शीट सं० आरडीएसओ/2011/ईएल/एमएस/0391 (रिवी. 0) दिनांक 04.02.2011 आपकी सूचना एवं आवश्यक कार्यवाही हेतु इस पत्र के साथ संलग्न है।

संलग्नक: यथोक्त।

(वी. के. सिंह)
कृते महानिदेशक/विद्युत

प्रतिलिपि:

1. सचिव (विद्युत कर्षण), रेलवे बोर्ड, रेल भवन, नई दिल्ली - 110 001 - कृपया सूचनार्थ
2. वरिष्ठ मंडल विद्युत अभियन्ता (टी.आर.एस.), विद्युत लोको शेड,
 - मध्य रेलवे, अजनी, नागपुर - 440 008
 - पूर्व मध्य रेलवे, गोमोह - 828 401
 - उत्तर रेलवे, गाजियाबाद, - 201 001 (उत्तर प्रदेश)
 - दक्षिण मध्य रेलवे, लालागुडा, सिकंदराबाद - 500 017
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 - दक्षिण पूर्व रेलवे, टाटानगर-831 002

संलग्नक: यथोक्त।

2/c

(वी. के. सिंह)
कृते महानिदेशक/विद्युत

जयिका
श्रीतदीय
09.2.11

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भारत सरकार – रेल मंत्रालय
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लखनऊ – 226011
Government of India - Ministry of Railways
Research, Designs & Standards Organization,
LUCKNOW - 226011

No. EL/11.5.5/5

Date: 04.02.2011

Chief Electrical Engineers,

- Northern Railway, Baroda House, New Delhi-110 001
- East Central Railway, Hazipur – 844 101 (Bihar)
- Central Railway, 2nd floor, Parcel Office Bldg., Mumbai CST-400 001
- South Central Railway, Rail Nilyam, Secunderabad – 500 071.
- West Central Railway, Jabalpur-482001
- South East Central Railway, Bilaspur-495004
- South Eastern Railway, Garden Reach, Kolkata-700 043
- Chittaranjan Locomotive Works, Chittaranjan-713 331 (WB)

MODIFICATION SHEET NO. RDSO/2011/EL/MS/0391 Rev.'0' Dated 04.02.11.

1.0 Title:

Replacement of ECSX make 24 MHz crystals by FOX make crystals in electronic cards of three phase electric locomotives.

2.0 Object:

During the discussion on failures of PPA 988 B02 cards in reliability meeting held at RDSO on 23-07-2010, M/s BTIL informed that ECSX make crystal (24 mega Hz) is not compatible with indigenized BAP ASIC and gives problem sometimes time where as FOX make crystal works perfectly with indigenized BAP ASIC. This 24 MHz crystal and BAP ASIC are also used in following six cards.

S. No.	Name of Card	Type of Card
1.	Controller board	PPB 471 A02
2.	NS / AS Controller Card	PPA 988 B02
3.	Single board computer- (SLG/FLG/STB/HBB)	PPB 622 B01
4.	Bus administrator	PPB 626 B01
5.	Diagnostic computer	PPB 624 A01
6.	Display computer	PPB 908 A01

However it has been observed that the severity of problem is more in three cards viz PPB 471 A02, PPA 988 B02 and PPB 622 B01. M/s BTIL after analyzing the problem informed the suspected power converter and auxiliary converter and VCU Nos. so that the crystal replacement can be planned.

3.0 Existing Arrangement with cross-references of respective design document: The photograph of existing crystal ECSX (ABB Id No.HETT402171P0240) is shown in Fig.1 below.

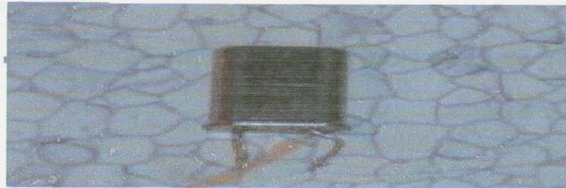


Fig.1 (ECSX make crystal)

- 4.0 Modified Arrangement to replace existing arrangement:** The photograph of Fox crystal is shown in fig.2 below.

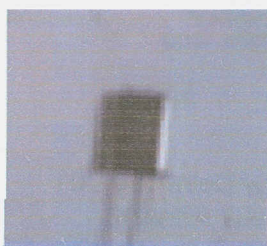


Fig.2 FOX make crystal

Six nos. electronic cards detailed in para 2 above having ECSX make crystal are shown in photographs in Annexure-I. These ECSX make crystals are required to be replaced with FOX make crystals supplied by M/s BTIL. Initially the ECSX make crystal may be replaced in three cards i.e. in PPB 471 A02, PPA 988 B02 and PPB 622 B01 as the problem in three cards is more. Further the crystal replacement in balance three cards may also be taken up depending upon extent of problem. Type of messages which may be encountered are also given at Annexure-I. Necessary training for crystal replacement shall be imparted by M/s BTIL to the loco sheds and FOX make crystals for replacement shall be given free of cost by M/s BTIL to loco sheds. The replacement in new converters and VCUs supplied to CLW shall be done by M/s BTIL.

- 5.0 Application to class of locomotives:**
WAP5, WAP7, WAG9, WAG9H locomotives as per the loco no., converter nos. and VCU nos. given in Annexure-II.
- 6.0 Material Required Per Loco:**
Fox make crystal one no. per card
- 7.0 Material Rendered Surplus:**
ECSX make crystal
- 8.0 Reference:**
Letter No. EL/11.5.5/5 dated 4-8-2010.
- 9.0 Modification Drawing:**
Photographs attached at Annexure-I
- 10.0 Agency of Implementation:**
M/s BTIL in new converters and VCUs at CLW and Electric loco sheds in identified converters and VCUs as per list attached in Annexure-II.

Encl: As above

Adh
04/02/11
(Sandeep Srivastava)
for Director General/Elect.

Copy to:-

1. Secretary (Electric Traction), Railway Board, Rail Bhavan, New Delhi-110 001
2. Sr. DEE (TRS), Electric Loco Sheds,
 - Central Railway, Ajni (Nagpur)-440008
 - East Central Railway, Gomoh-828 401
 - Northern Railway, Ghaziabad (UP)- 201001
 - South Central Railway, Lalaguda, Secunderabad – 500 017.
 - West Central Railway, Tughlakabad, New Delhi- 110 044.

- South East Central Railway, BMY Complex, Bhilai, Durg-490 025.
- ✓ South Eastern Railway, Tatanagar-831 002.

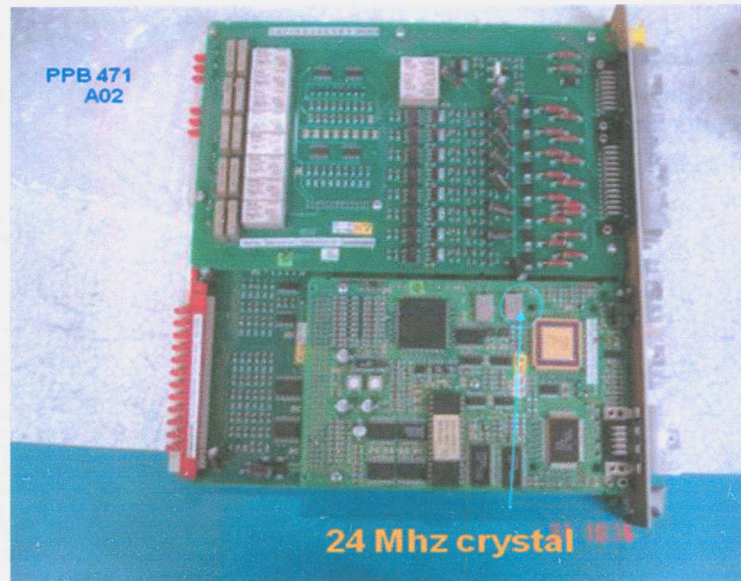
Encl: As above

Signature
04/02/11
(Sandeep Srivastava)
for Director General/Elect.

O/c

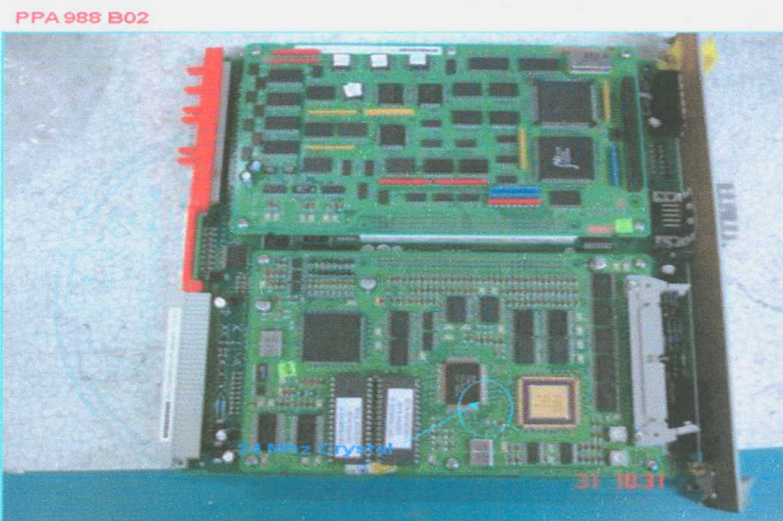
Signature
04/02/10

- If Down load is not possible
- Life sign missing
- No Connection
- Down loading OK but Life sign missing, Red LED continuously glowing.



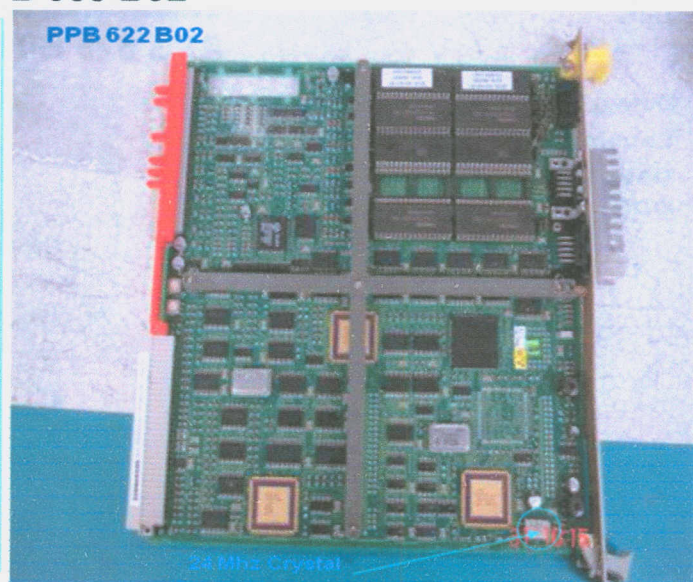
PPB 471 A02

- Down load not possible
- Watch dog problem and bogie isolated
- Error Clock frequency
- Error plausibility UD-1,
- Error PS hardware, Error watchdog
- Error Plausibility IQ1 & IQ2
- Pulse Stopping



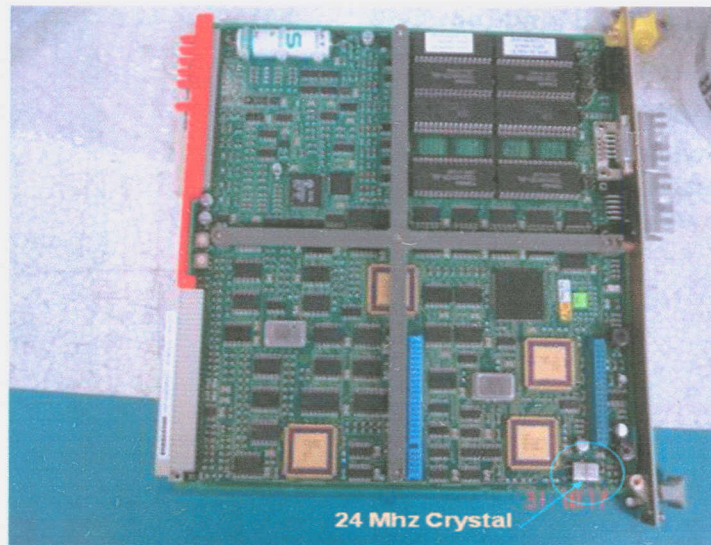
PPB 988 B02

- Down load not possible
- Life sign Missing
- Showing No Connection
- Time out Failure



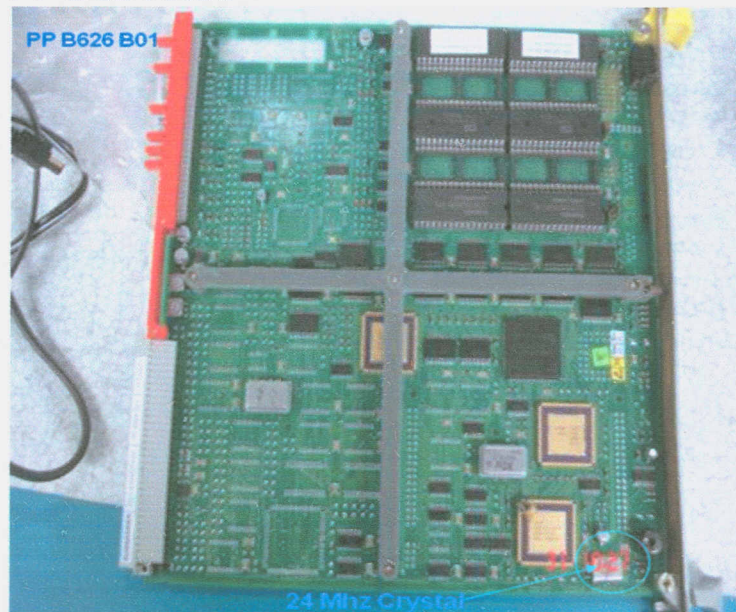
PPB 622 B02

- Down Load Not Possible
- Disturbance in DIA processor, 40.4 red LED glowing
- DIA 1: life sign missing



PP B624 A01

- Down Loading Not possible
- Intermittent Communication Interruption



PPB 626 B01

- Down Load Not Possible
- Causing FLG 1 isolation
- Downloading ok but no display on DDS



Annexure-II/1

No.	Traction Converter	Shed	Loco no
1	BWNNEC-9005-267	AQ	31221
1	BWNNEC-8014-215	BIA	31188
2	BWNNEC-8014-219		31188
3	BWNNEC-8014-231		31201
4	BWNNEC-8014-234		31201
5	BWNNEC-8014-238		31206
1	BWNNEC-8014-230	CLW	U/C
2	BWNNEC-8014-236		U/C
3	BWNNEC-8014-243		U/C
4	BWNNEC-8014-244		U/C
5	BWNNEC-9005-264		U/C
1	BWNNEC-7003-202	GZB	30019
2	BWNNEC-7003-204		30247
3	BWNNEC-8014-224		30224
4	BWNNEC-8014-226		30248
5	BWNNEC-8014-228		30246
6	BWNNEC-8014-232		30244
7	BWNNEC-8014-233		30249
8	BWNNEC-8014-239		30244
9	BWNNEC-8014-240		30245
10	BWNNEC-8014-241		30245
11	BWNNEC-8014-242		30256
12	BWNNEC-8014-248		30254
13	BWNNEC-9003-251		30249
14	BWNNEC-9003-253		30255
15	BWNNEC-9003-254		30021
16	BWNNEC-9003-257		30254
17	BWNNEC-9003-258		30023
1	BWNNEC-7003-203	LGD	31159
2	BWNNEC-7003-205		31179
3	BWNNEC-7003-206		30250
4	BWNNEC-7003-207		31177
5	BWNNEC-7003-208		31174
6	BWNNEC-7003-209		31176
7	BWNNEC-7003-210		31175
8	BWNNEC-8014-212		31191
9	BWNNEC-8014-213		31190
10	BWNNEC-8014-217		31189
11	BWNNEC-8014-218		31189
12	BWNNEC-8014-220		30240
13	BWNNEC-8014-222		30238
14	BWNNEC-8014-223		30238
15	BWNNEC-8014-249		30252

16	BWNNEC-9003-255		30253
17	BWNNEC-9003-256		30253
18	BWNNEC-9005-265		30258
19	BWNNEC-9005-266		30259
1	BWNNEC-8014-245	TATA	31240
1	BWNNEC-7003-211	TKD	31186
2	BWNNEC-8014-214		31194
3	BWNNEC-8014-216		31187
4	BWNNEC-8014-221		31200
5	BWNNEC-8014-225		31207
6	BWNNEC-8014-227		31207
7	BWNNEC-8014-229		31208
8	BWNNEC-8014-235		31211
9	BWNNEC-8014-237		31199
10	BWNNEC-8014-246		31213
11	BWNNEC-8014-247		31213
12	BWNNEC-9003-250		31212
13	BWNNEC-9003-252		31216
14	BWNNEC-9003-259		31217
15	BWNNEC-9003-260		31214
16	BWNNEC-9003-261		31217
17	BWNNEC-9005-262		31220
18	BWNNEC-9005-263		31219

Annexure-II/2

No.	BUR BOX1	Shed	Loco no.
1	BWN NEC 7011 - 111	AQ	31245
2	BWN NEC7011 - 131		31246
1	BWN NEC7011 - 125	BIA	31203
2	BWN NEC7011 - 126		31204
1	BWN NEC7011 - 130	CLW	U/C
2	BWN NEC7011 - 140		U/C
3			
4	BWN NEC 7011 - 109	GMO	31258
5	BWN NEC7011 - 136		31215
1	BWN NEC 7011 - 108	GZB	30265
2	BWN NEC 7011 - 112		30027
3	BWN NEC 7011 - 117		30026
4	BWN NEC7011 - 122		30246
5	BWN NEC7011 - 123		30241
6	BWN NEC7011 - 124		30242
7	BWN NEC7011 - 133		30256
8	BWN NEC7011 - 137		30267
9	BWN NEC7011 - 139		30280
10	BWN NEC7011 - 141		30029
1	BWN NEC 7011 - 101	LGD	31167
2	BWN NEC 7011 - 102		31168
3	BWN NEC 7011 - 103		31175
4	BWN NEC 7011 - 105		31176
5	BWN NEC 7011 - 106		31177
6	BWN NEC 7011 - 107		31189
7	BWN NEC 7011 - 114		30275
8	BWN NEC7011 - 120		30240
9	BWN NEC7011 - 121		30239
10	BWN NEC7011 - 127		30250
11	BWN NEC7011 - 129		31238
12	BWN NEC7011 - 132		31235
13	BWN NEC7011 - 138		31233
1	BWN NEC 7011 - 104	TKD	31195
2	BWN NEC 7011 - 110		31210
3	BWN NEC 7011 - 113		31187
4	BWN NEC 7011 - 115		31207
5	BWN NEC 7011 - 116		31208
6	BWN NEC7011 - 118		31211
7	BWN NEC7011 - 119		31197
8	BWN NEC7011 - 128		31213
9	BWN NEC7011 - 134		31214
10	BWN NEC7011 - 135		31216

No.	BUR BOX2	Shed	Loco no.
1	BWN NEC7011 - 109	AQ	31259
2	BWN NEC7011 - 111		31245
3	BWN NEC7011 - 131		31228
1	BWN NEC7011 - 125	BIA	31202
2	BWN NEC7011 - 126		31204
1	BWN NEC7011 - 107	CLW	U/C
2	BWN NEC7011 - 129		U/C
3	BWN NEC7011 - 140		U/C
1	BWN NEC7011 - 136	GMO	31215
1	BWN NEC7011 - 108	GZB	30026
2	BWN NEC7011 - 113		30027
3	BWN NEC7011 - 114		30282
4	BWN NEC7011 - 116		30246
5	BWN NEC7011 - 123		30241
6	BWN NEC7011 - 124		30242
7	BWN NEC7011 - 134		30256
8	BWN NEC7011 - 137		30267
9	BWN NEC7011 - 139		30280
10	BWN NEC7011 - 141		30029
1	BWN NEC7011 - 101	LGD	31168
2	BWN NEC7011 - 102		31166
3	BWN NEC7011 - 103		31176
4	BWN NEC7011 - 104		31175
5	BWN NEC7011 - 106		31177
6	BWN NEC7011 - 112		31189
7	BWN NEC7011 - 120		30240
8	BWN NEC7011 - 122		30239
9	BWN NEC7011 - 127		30250
10	BWN NEC7011 - 130		31238
11	BWN NEC7011 - 132		31235
12	BWN NEC7011 - 138		31233
1	BWN NEC7011 - 105	TKD	31170
2	BWN NEC7011 - 110		31187
3	BWN NEC7011 - 115		31207
4	BWN NEC7011 - 117		31211
5	BWN NEC7011 - 118		31210
6	BWN NEC7011 - 119		31197
7	BWN NEC7011 - 121		31195
8	BWN NEC7011 - 128		31213
9	BWN NEC7011 - 133		31214
10	BWN NEC7011 - 135		31216

No.	VCU	Shed	Loco no.	VCU 1/2
1	BWNNEC 8001 -237	AQ	31271	VCU 1
2	BWNNEC 8001 -239		31225	VCU 1
3	BWNNEC 8001 -240		31224	VCU 2
4	BWNNEC 9002 -275		31244	VCU 1
5	BWNNEC 9002 -276		31244	VCU 2
6	BWNNEC 9002 -277		31224	VCU 1
7	BWNNEC 9002 -278		31225	VCU 2
8	BWNNEC 9002 -281		31228	VCU 1
9	BWNNEC 9002 -282		31228	VCU 2
10	BWNNEC 7001 -271		Spare	VCU 1
11	BWNNEC 7001 -272		Spare	VCU 2
12	BWNNEC 7001 -273		Spare	VCU 1
13	BWNNEC 7001 -274		Spare	VCU 2
1	BWNNEC 8001 -226	BIA	31203	VCU 2
2	BWNNEC 8001 -227		31203	VCU 1
1	BWNNEC 7001 -179	CLW	U/C	VCU 1
2	BWNNEC 7001 -180		U/C	VCU 2
3	BWNNEC 7001 -189		U/C	VCU 1
4	BWNNEC 8001 -202		U/C	VCU 2
5	BWNNEC 8001 -209		U/C	VCU 1
6	BWNNEC 8001 -210		U/C	VCU 2
7	BWNNEC 8001 -213		U/C	VCU 1
8	BWNNEC 8001 -214		U/C	VCU 2
9	BWNNEC 8001 -215		U/C	VCU 1
10	BWNNEC 8001 -228		U/C	VCU 2
11	BWNNEC 8001 -232		U/C	VCU 2
12	BWNNEC 8001 -233		U/C	VCU 1
13	BWNNEC 8001 -241		U/C	VCU 1
14	BWNNEC 8001 -242		U/C	VCU 2
15	BWNNEC 8001 -245		U/C	VCU 1
16	BWNNEC 8001 -246		U/C	VCU 2
17	BWNNEC 8001 -249		U/C	VCU 1
18	BWNNEC 8001 -250		U/C	VCU 2
19	BWNNEC 8001 -251		U/C	VCU 1
20	BWNNEC 8001 -253		U/C	VCU 1
21	BWNNEC 8001 -254		U/C	VCU 2
22	BWNNEC 9002 -283		U/C	VCU 1
23	BWNNEC 9002 -284		U/C	VCU 2
24	BWNNEC 9002 -285		U/C	VCU 1
1	BWNNEC 8001 -224	GMO	31266	VCU 2
2	BWNNEC 8001 -248		31215	VCU 2
3	BWNNEC 8001 -208		31268	VCU 2
1	BWNNEC 7001 -190		30024	VCU 2

2	BWNNEC 8001 -203	GZB	30255	VCU 1
3	BWNNEC 8001 -204		30255	VCU 2
4	BWNNEC 8001 -205		30241	VCU 1
5	BWNNEC 8001 -206		30244	VCU 2
6	BWNNEC 8001 -207		30030	VCU 1
7	BWNNEC 8001 -217		30256	VCU 1
8	BWNNEC 8001 -218		30256	VCU 2
9	BWNNEC 8001 -219		30249	VCU 1
10	BWNNEC 8001 -220		30249	VCU 2
11	BWNNEC 8001 -221		30280	VCU 1
12	BWNNEC 8001 -222		30280	VCU 2
13	BWNNEC 8001 -223		30245	VCU 1
14	BWNNEC 8001 -225		30245	VCU 1
15	BWNNEC 8001 -229		30257	VCU 1
16	BWNNEC 8001 -236		30267	VCU 2
17	BWNNEC 8001 -238		30030	VCU 2
18	BWNNEC 8001 -247		30254	VCU 1
19	BWNNEC 8001 -255		30023	VCU 1
20	BWNNEC 8001 -256		30023	VCU 2
1	BWNNEC 7001 -181	LGD	30274	VCU 1
2	BWNNEC 7001 -182		30274	VCU 2
3	BWNNEC 7001 -183		31191	VCU 1
4	BWNNEC 7001 -184		31191	VCU 2
5	BWNNEC 7001 -185		30239	VCU 1
6	BWNNEC 7001 -186		30239	VCU 2
7	BWNNEC 7001 -187		30237	VCU 1
8	BWNNEC 7001 -188		30237	VCU 2
9	BWNNEC 8001 -211		31250	VCU 1
10	BWNNEC 8001 -212		31250	VCU 2
11	BWNNEC 8001 -230		31235	VCU 2
12	BWNNEC 8001 -234		30261	VCU 2
13	BWNNEC 8001 -235		31235	VCU 1
14	BWNNEC 8001 -243		30261	VCU 1
15	BWNNEC 8001 -244		31223	VCU 2
16	BWNNEC 9002 -279		31231	VCU 1
17	BWNNEC 9002 -280		31231	VCU 2
1	BWNNEC 7001 -191	TKD	31186	VCU 1
2	BWNNEC 7001 -192		31186	VCU 2
3	BWNNEC 8001 -201		31194	VCU 1
4	BWNNEC 8001 -216		31211	VCU 2
5	BWNNEC 8001 -231		31217	VCU 1
6	BWNNEC 8001 -252		31214	VCU 2