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CIRCUIT CONNECTIVITY	BC15	2,3
CIRCUIT CONNECTIVITY	BC16	2,3
CIRCUIT CONNECTIVITY	BC17	2,3
CIRCUIT CONNECTIVITY	BC18	2,3
CIRCUIT CONNECTIVITY	BC19	2,3
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X	STD 3		B2,3/B4
W	STD 3		B2,3/B4
V	STD 3		B2,3/B4
U	STD 3		B2,3/B4
T	STD 3		B2,3/B4
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DWG ISS	CD ISS	DWG ISS	CD ISS	DWG ISS	CD ISS
1	1 APPX –	2M	2 APPX –	3B	2 APPX –

DWG ISS	CD ISS	DATE ISSD	DRN	APP
4M	2 APPX 1M	02-09-93		
5B	2 APPX 2B	04-05-94		
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SUPPORTING INFORMATION

SYSTEM USED ON	DESIGN CONTROL	CATEGORY	NO.
5ESS	IH		

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1. ONLY THE LATEST ISSUE, OR ISSUES IF CONCURRENT, ARE SHOWN IN THE INDEX.
2. FOR REISSUES, A CHANGED OR NEW SHEET IS ASSIGNED THE SAME ISSUE NUMBER AS SHEET 1.
3. THE ISSUE NUMBER OF SHEET 1 IS RECOGNIZED AS THE ISSUE NUMBER OF THE WHOLE DRAWING.

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BT13

5ESS® SWITCHING EQUIPMENT
TRANSMISSION RATE CONVERTER
UNIT MODEL 2
CIRCUIT
(TRCU2)

DWG SIZE	ISSUE
C2	6M

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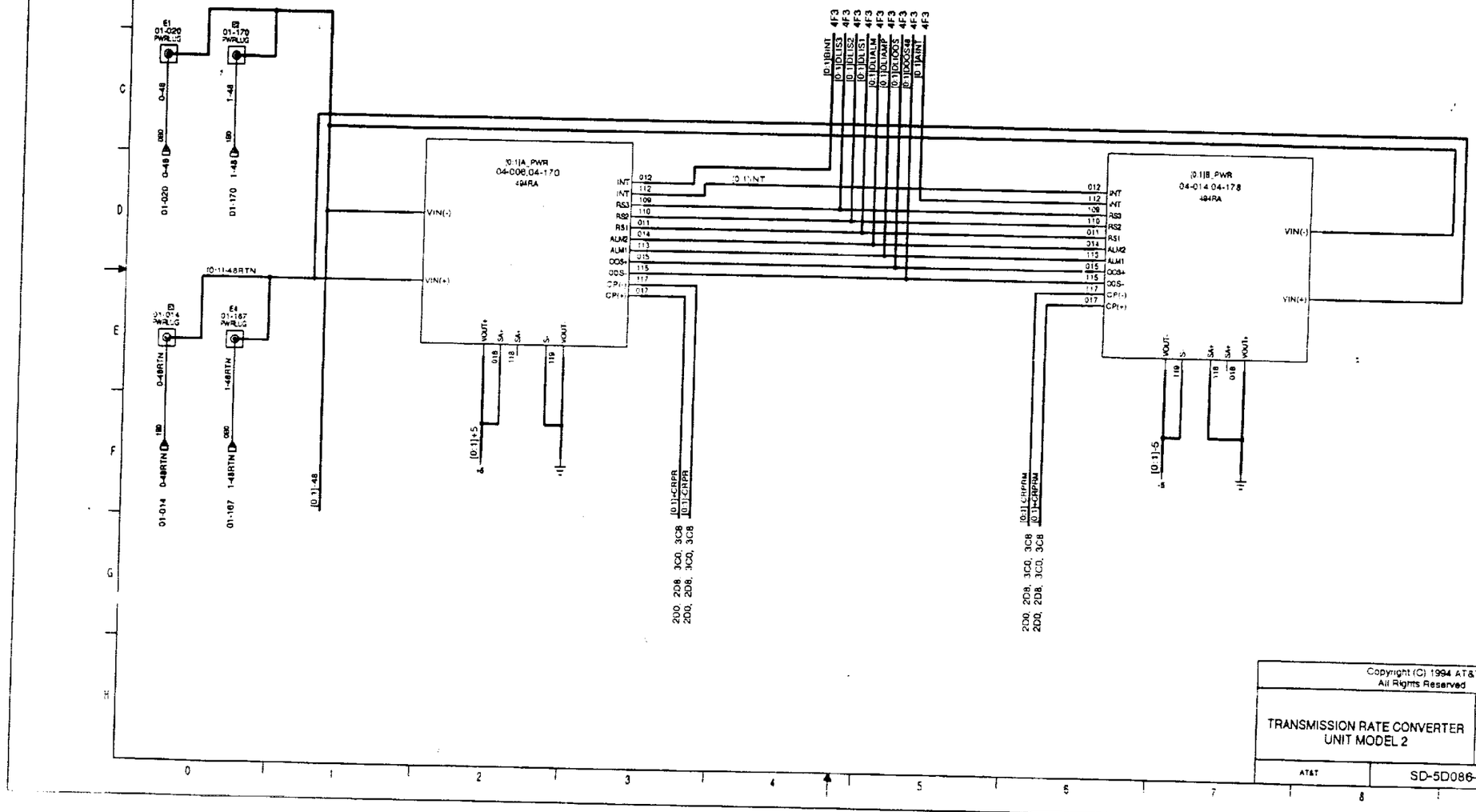
SIDE 0 AND 1 POWER

NOTES:
1. THIS SCHEMATIC SHOWS CIRCUITS 0 AND 1 COMPRESSED. NAMES OF THE FORM [0:1]NAME EXPAND TO 0NAME FOR CIRCUIT 0 AND 1NAME FOR CIRCUIT 1.



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TRANSMISSION RATE CONVERTER UNIT MODEL 2		DWG SIZE C2	ISSUE 5B
AT&T	SD-5D086-02		SHEET B1

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SIDE 0 AND 1

CIRCUIT A

THE FOLLOWING CONNECTIONS ARE ISOLATED BACKPLANE PINS WHEN OPTION (Q) IS IN EFFECT: 04-022-038 04-138-038 04-022-150 04-138-150

NOTES
1. THIS SCHEMATIC SHOWS CIRCUITS 0 AND 1 COMPRESSED. NAMES OF THE FORM [0:1]NAME EXPAND TO 0NAME FOR CIRCUIT 0 AND 1NAME FOR CIRCUIT 1.

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TRANSMISSION RATE CONVERTER MODEL UNIT 2

DWG SIZE	ISSUE
C2	5B

AT&T	SD-5D086-02	SHEET
		B2

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SIDE 0 AND 1

CIRCUIT B

THE FOLLOWING CONNECTIONS ARE ISOLATED BACKPLANE PINS WHEN OPTION (Q) IS IN EFFECT: 04-038-039 04-154-039
04-038-150 04-154-150

NOTES:
1. THIS SCHEMATIC SHOWS CIRCUITS 0 AND 1 COMPRESSED. NAMES OF THE FORM [0:1]NAME EXPAND TO 0NAME FOR CIRCUIT 0 AND 1NAME FOR CIRCUIT 1.

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TRANSMISSION RATE CONVERTER UNIT MODEL 2

DWG SIZE	ISSUE
C2	5B

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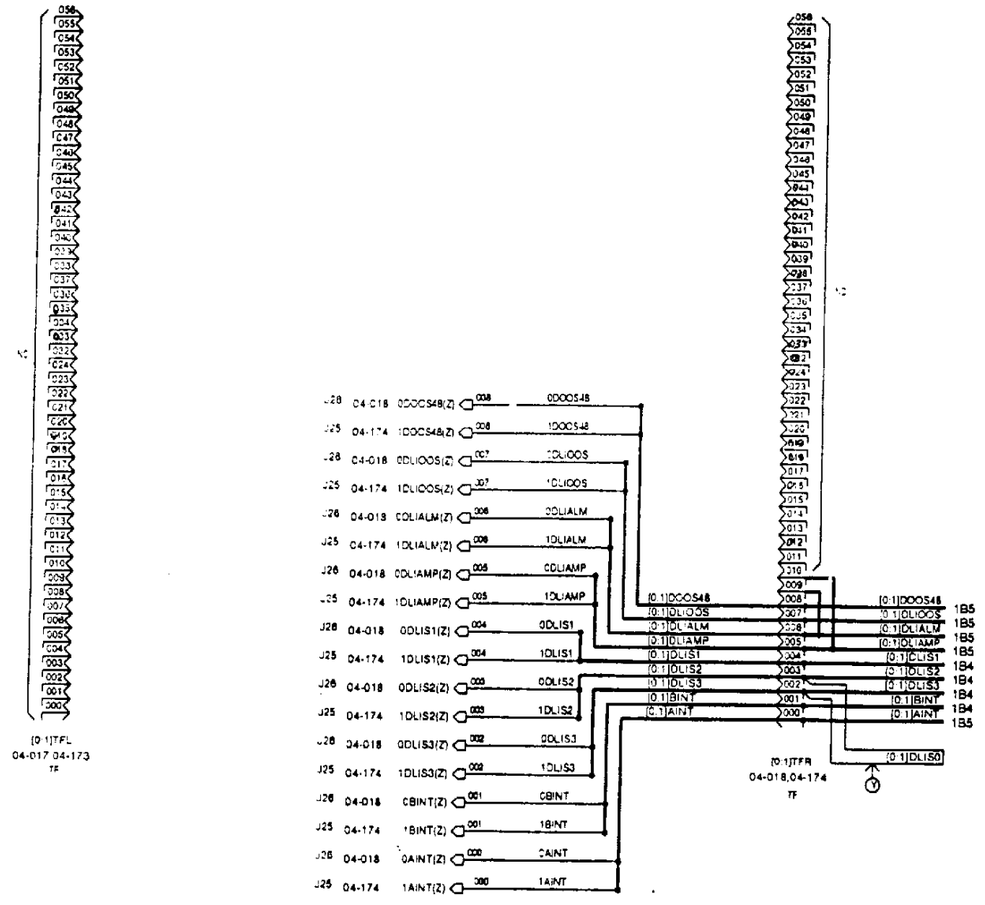
CABLING DIAGRAM

NOTES:
1. THIS SCHEMATIC SHOWS CIRCUITS 0 AND 1 COMPRESSED. NAMES OF THE FORM [0:1]NAME EXPAND TO 0NAME FOR CIRCUIT 0 AND 1NAME FOR CIRCUIT 1.



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TRANSMISSION RATE CONVERTER UNIT MODEL 2		DWG SIZE C2	ISSUE 5B
AT&T	SD-5D086-02	SHEET 84	

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GRD04022	034	GRD04022(Z)	04-022	J24
GRD04022	040	GRD04022(Z)	04-022	J24
GRD04022	139	GRD04022(Z)	04-022	J24
GRD04022	052	GRD04022(Z)	04-022	J22
GRD04022	148	GRD04022(Z)	04-022	J22
GRD04022	152	GRD04022(Z)	04-022	J22
GRD04030	034	GRD04030(Z)	04-030	J20
GRD04030	040	GRD04030(Z)	04-030	J20
GRD04030	139	GRD04030(Z)	04-030	J20
GRD04030	052	GRD04030(Z)	04-030	J18
GRD04030	148	GRD04030(Z)	04-030	J18
GRD04030	152	GRD04030(Z)	04-030	J18
GRD04138	034	GRD04138(Z)	04-138	J12
GRD04138	034	GRD04138(Z)	04-138	J12
GRD04138	040	GRD04138(Z)	04-138	J12
GRD04138	052	GRD04138(Z)	04-138	J10
GRD04138	148	GRD04138(Z)	04-138	J10
GRD04138	152	GRD04138(Z)	04-138	J10
GRD04146	034	GRD04146(Z)	04-146	J8
GRD04146	040	GRD04146(Z)	04-146	J8
GRD04146	139	GRD04146(Z)	04-146	J8
GRD04146	052	GRD04146(Z)	04-146	J6
GRD04146	148	GRD04146(Z)	04-146	J6
GRD04146	152	GRD04146(Z)	04-146	J6

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TRANSMISSION RATE CONVERTER
UNIT MODEL 2

DWG SIZE	ISSUE
C2	5B

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LEAD DESIG	CODE EQL / APP OPT	494RA 04-006	494RA 04-014	TN1345 04-022	TN1345 04-030	TN1345 04-038	TN1345 04-046	AKM3 04-063 U	16E 04-069	AKM3 04-082 U	16E 04-088	AKM3 04-101 U	16E 04-107	AKM3 04-120 U	16E 04-126	TN1345 04-138	TN1345 04-146	TN1345 04-154	TN1345 04-162	494RA 04-170	494RA 04-178		WRG OPT	SEE NOTE OR REFERENCE
0-5		<O> 018 045 046 047 048 049 050 051 052 053 054 055 056 145 146 147 148 149 150 151 152 153 154 155 156		<P> 000 001 006 010 014 018 023 024 051 055 056 100 101 106 110 112 114 118 123 124 134 155 156	<O> 011 <P> 000 001 006 010 014 018 023 024 051 055 056 100 101 106 110 112 114 118 123 124 134 155 156	<P> 000 001 006 010 014 018 023 024 051 055 056 100 101 106 110 112 114 118 123 124 134 155 156	<O> 011 <P> 000 001 006 010 014 018 023 024 051 055 056 100 101 106 110 112 114 118 123 124 134 155 156		<P> 100 200 300		<P> 100 200 300													
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0-CRPRM			<O> 017	<1> 103	<1> 103	<1> 103	<1> 103																	
0-48		<1> 006 007 008 106 107 108	<1> 006 007 008 106 107 108	<P> 049	<P> 049	<P> 049	<P> 049																	
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0-CRPR		<O> 117		<1> 002	<1> 002	<1> 002	<1> 002																	

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TRANSMISSION RATE CONVERTER
UNIT MODEL 2

DWG SIZE: C2
ISSUE: 3B

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LEAD DESIG	CODE	494RA	494RA	TN1345	TN1345	TN1345	TN1345	AKM3	16E	AKM3	16E	AKM3	16E	AKM3	16E	TN1345	TN1345	TN1345	TN1345	494RA	494RA		WRG OPT	SEE NOTE OR REFERENCE
	EQL	04-006	04-014	04-022	04-030	04-038	04-046	04-063	04-069	04-082	04-088	04-101	04-107	04-120	04-126	04-138	04-146	04-154	04-162	04-170	04-178			
	APP OPT							U		U		U		U										
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0AEC45DP				<0> 351					<1> 319															
0AEC45MN				<0> 247					<1> 231															
0AEC45MP				<0> 347					<1> 331															
0AEC45N				<0> 243					<1> 211															
0AEC45P				<0> 343					<1> 311															
0AEC90N				<0> 253					<1> 223															
0AEC90P				<0> 353					<1> 323															
0AED3				<0> 337				<1> 048																
0AED45DN				<0> 249					<1> 215															
0AED45DP				<0> 349					<1> 315															
0AED45MN				<0> 245					<1> 227															
0AED45MP				<0> 345					<1> 327															
0AEDNOF				<0> 047					<1> 038															
0AEDS3				<0> 335				<1> 119																
0AEEQP				<0> 205					<1> 134															
0AEMST0				<0> 005											<0> 105									
0AEMSYNC				<0> 317					<1> 136															
0AEQP				<0> 304	<0> 304			<1> 023																
0AEST0				<0> 105											<0> 005									
0ALPO				<0> 203	<0> 303																			
0ALPOM				<0> 303	<0> 203																			
0AMSTR				<1> 039	<1> 039																			

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DWG SIZE C2 | ISSUE 3B

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LEAD DESIG	CODE EQL APP OPT	494RA 04-006	494RA 04-014	TN1345 04-022	TN1345 04-030	TN1345 04-038	TN1345 04-046	AKM3 04-063 U	16E 04-069	AKM3 04-082 U	16E 04-088	AKM3 04-101 U	16E 04-107	AKM3 04-120 U	16E 04-126	TN1345 04-138	TN1345 04-146	TN1345 04-154	TN1345 04-162	494RA 04-170	494RA 04-178		WRG OPT	SEE NOTE OR REFERENCE
0AOC45DN					<0> 251				<0> 217															
0AOC45DP					<0> 351				<0> 317															
0AOC45MN					<0> 247				<0> 229															
0AOC45MP					<0> 347				<0> 329															
0AOC45N					<0> 243				<0> 209															
0AOC45P					<0> 343				<0> 309															
0AOC90N					<0> 253				<0> 221															
0AOC90P					<0> 353				<0> 321															
0AOD3					<0> 337			<0> 138																
0AOD45DN					<0> 249				<0> 213															
0AOD45DP					<0> 349				<0> 313															
0AOD45MN					<0> 245				<0> 225															
0AOD45MP					<0> 345				<0> 325															
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0AODS3					<0> 335			<0> 006																
0AOEQP					<0> 205				<0> 034															
0AOMST0					<0> 005											<0> 105								
0AOMSYNC					<0> 317				<0> 135															
0AOST0					<0> 105											<0> 005								
0ASDS3A								<0> 015 117																
0ASDS3B								<0> 002 004																
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0BEC45DN					<0> 251						<1> 219													

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TRANSMISSION RATE CONVERTER UNIT MODEL 2

DWG SIZE C2 | ISSUE 3B | SHEET BC3

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LEAD DESIG	CODE EQL APP OPT	494RA 04-006	494RA 04-014	TN1345 04-022	TN1345 04-030	TN1345 04-038	TN1345 04-046	AKM3 04-063 U	16E 04-069	AKM3 04-082 U	16E 04-088	AKM3 04-101 U	16E 04-107	AKM3 04-120 U	16E 04-126	TN1345 04-138	TN1345 04-146	TN1345 04-154	TN1345 04-162	494RA 04-170	494RA 04-178		WRG OPT	SEE NOTE OR REFERENCE
0BEC45DP						<0> 351					<1> 319													
0BEC45MN						<0> 247					<1> 231													
0BEC45MP						<0> 347					<1> 331													
0BEC45N						<0> 243					<1> 211													
0BEC45P						<0> 343					<1> 311													
0BEC90N						<0> 253					<1> 223													
0BEC90P						<0> 353					<1> 323													
0BED3						<0> 337				<1> 048														
0BED45DN						<0> 249					<1> 215													
0BED45DP						<0> 349					<1> 315													
0BED45MN						<0> 245					<1> 227													
0BED45MP						<0> 345					<1> 327													
0BEDNOF						<0> 047					<1> 038													
0BEDS3						<0> 335				<1> 119														
0BEEQP						<0> 205					<1> 134													
0BEMST0						<0> 005												<0> 105						
0BEMSYNC						<0> 317					<1> 136													
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0BOC45DP							<0> 351				<0> 317													

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TRANSMISSION RATE CONVERTER UNIT MODEL 2

DWG SIZE C2 | ISSUE 3B

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LEAD DESIG	CODE EQL APP OPT	494RA 04-006	494RA 04-014	TN1345 04-022	TN1345 04-030	TN1345 04-038	TN1345 04-046	AKM3 04-063 U	16E 04-069	AKM3 04-082 U	16E 04-088	AKM3 04-101 U	16E 04-107	AKM3 04-120 U	16E 04-126	TN1345 04-138	TN1345 04-146	TN1345 04-154	TN1345 04-162	494RA 04-170	494RA 04-178		WRG OPT	SEE NOTE OR REFERENCE
0BOC45MN							<0> 247				<0> 229													
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0BOD45DP							<0> 349				<0> 313													
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0BOEQP							<0> 205				<0> 034													
0BOMST0							<0> 005												<0> 105					
0BOMSYNC							<0> 317				<0> 135													
0BOST0							<0> 105												<0> 005					
0BSDS3A										<0> 015 117														
0BSDS3B										<0> 002 004														
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0DLIAMP	<0> 113	<0> 113																						
0DLIOOS	<0> 015	<0> 015																						

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TRANSMISSION RATE CONVERTER UNIT MODEL 2

DWG SIZE: C2 | ISSUE: 3B

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LEAD DESIG	CODE / EQL / APP OPT	494RA 04-006	494RA 04-014	TN1345 04-022	TN1345 04-030	TN1345 04-038	TN1345 04-046	AKM3 04-063 U	16E 04-069	AKM3 04-082 U	16E 04-088	AKM3 04-101 U	16E 04-107	AKM3 04-120 U	16E 04-126	TN1345 04-138	TN1345 04-146	TN1345 04-154	TN1345 04-162	494RA 04-170	494RA 04-178		WRG OPT	SEE NOTE OR REFERENCE
0DLIS1		<O> 011	<O> 011																					
0DLIS2		<O> 110	<O> 110																					
0DLIS3		<O> 109	<O> 109																					
0DCOS48		<O> 115	<O> 115																					
0INT		<O> 112	<O> 012																					
1-5													<P> 100 200 300		<P> 100 200 300	<P> 000 001 006 010 014 018 023 024 051 055 056 100 101 106 110 112 114 118 123 124 134 155 156	<O> 011 <P> 000 001 006 010 014 018 023 024 051 055 056 100 101 106 110 112 114 118 123 124 134 155 156	<P> 000 001 006 010 014 018 023 024 051 055 056 100 101 106 110 112 114 118 123 124 134 155 156	<O> 011 <P> 000 001 006 010 014 018 023 024 051 055 056 100 101 106 110 112 114 118 123 124 134 155 156	<O> 018 045 046 047 048 049 050 051 052 053 054 055 056 145 146 147 148 149 150 151 152 153 154 155 156				
1+CRPR																<1> 102	<1> 102	<1> 102	<1> 102	<O> 017				
1+CRPRM																<1> 103	<1> 103	<1> 103	<1> 103		<O> 017			
1-48																<P> 049	<P> 049	<P> 049	<P> 049	<1> 006 007 008 106 107 108	<1> 006 007 008 106 107 108			
1-48RTN																				<1> 003 004 005 103 104 105	<1> 003 004 005 103 104 105			

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TRANSMISSION RATE CONVERTER UNIT MODEL 2

DWG SIZE C2 | ISSUE 3B | SHEET BC6

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LEAD DESIG	CODE / EQL / APP OPT	494RA 04-006	494RA 04-014	TN1345 04-022	TN1345 04-030	TN1345 04-038	TN1345 04-046	AKM3 04-063 U	16E 04-069	AKM3 04-082 U	16E 04-088	AKM3 04-101 U	16E 04-107	AKM3 04-120 U	16E 04-126	TN1345 04-138	TN1345 04-146	TN1345 04-154	TN1345 04-162	494RA 04-170	494RA 04-178		WRG OPT	SEE NOTE OR REFERENCE
1-5													<P> 048 148 149 249		<P> 049 148 149 249	<P> 012 032 033 044 132 133 144	<P> 012 032 033 044 132 133 144	<P> 012 032 033 044 132 133 144	<P> 012 032 033 044 132 133 144		<O> 032 033 034 035 036 037 038 039 040 041 042 043 119 132 133 134 135 136 137 138 139 140 141 142 143			
1-CRPR																<I> 002	<I> 002	<I> 002	<I> 002	<O> 117				
1-CRPRM																<I> 003	<I> 003	<I> 003	<I> 003		<O> 117			
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DWG SIZE C2 | ISSUE 3B | SHEET BC7

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LEAD DESIG	CODE / EQL / APP OPT	494RA 04-006	494RA 04-014	TN1345 04-022	TN1345 04-030	TN1345 04-038	TN1345 04-046	AKM3 04-063 U	16E 04-069	AKM3 04-082 U	16E 04-088	AKM3 04-101 U	16E 04-107	AKM3 04-120 U	16E 04-126	TN1345 04-138	TN1345 04-146	TN1345 04-154	TN1345 04-162	494RA 04-170	494RA 04-178		WRG OPT	SEE NOTE OR REFERENCE
1AEDS3												<1> 119				<0> 335								
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1AEMSYNC													<1> 136			<0> 317								
1AEQP												<1> 023				<0> 304	<0> 304							
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1AOEQP													<0> 034				<0> 205							
1AOMSYNC													<0> 135				<0> 317							

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TRANSMISSION RATE CONVERTER UNIT MODEL 2

DWG SIZE C2 | ISSUE 3B | SHEET BC8

AT&T SD-5D086-02

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LEAD DESIG	CODE EQL APP OPT	494RA 04-006	494RA 04-014	TN1345 04-022	TN1345 04-030	TN1345 04-038	TN1345 04-046	AKM3 04-063 U	16E 04-069	AKM3 04-082 U	16E 04-088	AKM3 04-101 U	16E 04-107	AKM3 04-120 U	16E 04-126	TN1345 04-138	TN1345 04-146	TN1345 04-154	TN1345 04-162	494RA 04-170	494RA 04-178		WRG OPT	SEE NOTE OR REFERENCE
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1ASDS3B												<O> 002 004												
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1BED45MN															<I> 227			<O> 245						
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1BEQP														<I> 023				<O> 304	<O> 304					
1BLPO																		<O> 203	<O> 303					
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TRANSMISSION RATE CONVERTER UNIT MODEL 2

DWG SIZE C2 | ISSUE 3B

AT&T | SD-5D086-02 | SHEET BC9

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LEAD DESIG	CODE EQL / APP OPT	494RA 04-006	494RA 04-014	TN1345 04-022	TN1345 04-030	TN1345 04-038	TN1345 04-046	AKM3 04-063 U	16E 04-069	AKM3 04-082 U	16E 04-088	AKM3 04-101 U	16E 04-107	AKM3 04-120 U	16E 04-126	TN1345 04-138	TN1345 04-146	TN1345 04-154	TN1345 04-162	494RA 04-170	494RA 04-178		WRG OPT	SEE NOTE OR REFERENCE
1BMSTR																		<1> 039	<1> 039					
1BOC45DN															<0> 217				<0> 251					
1BOC45DP															<0> 317				<0> 351					
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1BOC45N															<0> 209				<0> 243					
1BOC45P															<0> 309				<0> 343					
1BOC90N															<0> 221				<0> 253					
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1BOD3														<0> 138					<0> 337					
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1BODNOF															<0> 137				<0> 047					
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1BOEQP															<0> 034				<0> 205					
1BOMSYNC															<0> 135				<0> 317					
1BSDS3A														<0> 015 117										
1BSDS3B														<0> 002 004										
1BSELREF																		<1> 150	<1> 150					
1DLIALM																				<0> 014	<0> 014			
1DLIAMP																				<0> 113	<0> 113			

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TRANSMISSION RATE CONVERTER UNIT MODEL 2

DWG SIZE C2 | ISSUE 3B

AT&T | SD-5D086-02 | SHEET BC10

PRINTED IN U.S.A

LEAD DESIG	CODE	494RA	494RA	TN1345	TN1345	TN1345	TN1345	AKM3	16E	AKM3	16E	AKM3	16E	AKM3	16E	TN1345	TN1345	TN1345	TN1345	494RA	494RA		WRG OPT	SEE NOTE OR REFERENCE
	EQL	04-006	04-014	04-022	04-030	04-038	04-046	04-063	04-069	04-082	04-088	04-101	04-107	04-120	04-126	04-138	04-146	04-154	04-162	04-170	04-178			
	APP OPT							U		U		U		U										
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1DLIS2																				<0> 110	<0> 110			
1DLIS3																				<0> 109	<0> 109			
1DOOS48																				<0> 115	<0> 115			
1INT																				<0> 112	<0> 012			
GRD04006		<0> 032 033 034 035 036 037 038 039 040 041 042 043 119 132 133 134 135 136 137 138 139 140 141 142 143																						
GRD04014			<0> 045 046 047 048 049 050 051 052 053 054 055 056 118 145 146 147 148 149 150 151 152 153 154 155 156																					

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TRANSMISSION RATE CONVERTER UNIT MODEL 2

DWG SIZE: C2
ISSUE: 3B
AT&T
SD-5D086-02
SHEET: BC11
PRINTED IN U.S.A

	CODE	494RA	494RA	TN1345	TN1345	TN1345	TN1345	AKM3	16E	AKM3	16E	AKM3	16E	AKM3	16E	TN1345	TN1345	TN1345	TN1345	494RA	494RA		WRQ	SEE NOTE
LEAD	EQL	04-006	04-014	04-022	04-030	04-038	04-046	04-063	04-069	04-082	04-088	04-101	04-107	04-120	04-126	04-138	04-146	04-154	04-162	04-170	04-178		OPT	OR
DESIG	APP OPT							U		U		U		U										REFERENCE
GRD04022				<G> 004 008 013 016 020 021 034 040 052 104 108 113 116 120 121 139 148 152 200 201 202 204 206 208 210 212 214 216 218 220 222 223 224 232 233 234 236 238 240 242 244 246 248 250 252 254 255 256 300 301 302 306 308 310 312 314 316 318 320 322 323 324 332 333 334 336 338 340 342 344 346 348 350 352 354 355 356 <O> 011																							

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TRANSMISSION RATE CONVERTER
UNIT MODEL 2

DWG SIZE	ISSUE
C2	3B

AT&T	SD-5D086-02	SHEET
		BC12

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	CODE	494RA	494RA	TN1345	TN1345	TN1345	TN1345	AKM3	16E	AKM3	16E	AKM3	16E	AKM3	16E	TN1345	TN1345	TN1345	TN1345	494RA	494RA		WRG	SEE NOTE
LEAD	EQL	04-006	04-014	04-022	04-030	04-038	04-046	04-063	04-069	04-082	04-088	04-101	04-107	04-120	04-126	04-138	04-146	04-154	04-162	04-170	04-178		OPT	OR
DESIG	APP OPT							U		U		U		U										REFERENCE
GRD04030					<G>																			
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TRANSMISSION RATE CONVERTER
UNIT MODEL 2

DWG SIZE: C2
ISSUE: 3B

AT&T

SD-5D086-02

SHEET: BC13

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LEAD DESIG	CODE	494RA	494RA	TN1345	TN1345	TN1345	TN1345	AKM3	16E	AKM3	16E	AKM3	16E	AKM3	16E	TN1345	TN1345	TN1345	TN1345	494RA	494RA		WRG	SEE NOTE
	EQL	04-006	04-014	04-022	04-030	04-038	04-046	04-063	04-069	04-082	04-088	04-101	04-107	04-120	04-126	04-138	04-146	04-154	04-162	04-170	04-178		OPT	OR
	APP OPT							U		U		U		U										REFERENCE
GRD04038						<G> 004 008 013 016 020 021 034 040 052 104 108 113 116 120 121 139 148 152 200 201 202 204 206 208 210 212 214 216 218 220 222 223 224 232 233 234 236 238 240 242 244 246 248 250 252 254 255 256 300 301 302 306 308 310 312 314 316 318 320 322 323 324 332 333 334 336 338 340 342 344 346 348 350 352 354 355 356 <D> 011																						REFERENCE

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TRANSMISSION RATE CONVERTER UNIT MODEL 2

DWG SIZE	ISSUE
C2	3B

AT&T	SD-5D086-02	SHEET
		BC14

PRINTED IN U.S.A

LEAD DESIG	CODE	494RA	494RA	TN1345	TN1345	TN1345	TN1345	AKM3	16E	AKM3	16E	AKM3	16E	AKM3	16E	TN1345	TN1345	TN1345	TN1345	494RA	494RA		WRG OPT	SEE NOTE OR REFERENCE
	EQL	04-006	04-014	04-022	04-030	04-038	04-046	04-063	04-069	04-082	04-088	04-101	04-107	04-120	04-126	04-138	04-146	04-154	04-162	04-170	04-178			
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TRANSMISSION RATE CONVERTER UNIT MODEL 2

DWG SIZE: C2

ISSUE: 3B

AT&T

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SHEET: BC15

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LEAD DESIG	CODE / EQL / APP OPT	494RA 04-006	494RA 04-014	TN1345 04-022	TN1345 04-030	TN1345 04-038	TN1345 04-046	AKM3 04-063 U	16E 04-069	AKM3 04-082 U	16E 04-088	AKM3 04-101 U	16E 04-107	AKM3 04-120 U	16E 04-126	TN1345 04-138	TN1345 04-146	TN1345 04-154	TN1345 04-162	494RA 04-170	494RA 04-178		WRG OPT	SEE NOTE OR REFERENCE
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TRANSMISSION RATE CONVERTER UNIT MODEL 2

DWG SIZE: C2 | ISSUE: 3B

AT&T | SD-5D086-02 | SHEET: BC16

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	CODE	494RA	494RA	TN1345	TN1345	TN1345	TN1345	AKM3	16E	AKM3	16E	AKM3	16E	AKM3	16E	TN1345	TN1345	TN1345	TN1345	494RA	494RA		WRG	SEE NOTE
LEAD	EQL	04-006	04-014	04-022	04-030	04-038	04-046	04-063	04-069	04-082	04-088	04-101	04-107	04-120	04-126	04-138	04-146	04-154	04-162	04-170	04-178		OPT	OR
DESIG	APP OPT							U		U		U		U										REFERENCE
GRD04082										<G> 001 017 018 019 020 022 036 038 039 102 103 104 105 106 107 108 114 115 124 140 146 147 212 228 244 304 316 332 348															
GRD04088											<G> 009 017 025 033 046 108 116 124 132 138 140 208 210 212 214 216 218 220 222 224 226 228 230 232 244 304 308 310 312 314 316 318 320 322 324 326 328 330 332 344													

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TRANSMISSION RATE CONVERTER
UNIT MODEL 2

DWG SIZE: C2
ISSUE: 3B

AT&T | SD-5D086-02 | SHEET: BC17

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LEAD DESIG	CODE EQL APP OPT	494RA 04-006	494RA 04-014	TN1345 04-022	TN1345 04-030	TN1345 04-038	TN1345 04-046	AKM3 04-063 U	16E 04-069	AKM3 04-082 U	16E 04-088	AKM3 04-101 U	16E 04-107	AKM3 04-120 U	16E 04-126	TN1345 04-138	TN1345 04-146	TN1345 04-154	TN1345 04-162	494RA 04-170	494RA 04-178		WRG OPT	SEE NOTE OR REFERENCE
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GRD04107													<G> 009 017 025 033 046 108 116 124 132 138 140 208 210 212 214 216 218 220 222 224 226 228 230 232 244 304 308 310 312 314 316 318 320 322 324 326 328 330 332 344											

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TRANSMISSION RATE CONVERTER
UNIT MODEL 2

DWG SIZE C2 | ISSUE 3B

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LEAD DESIG	CODE	494RA	494RA	TN1345	TN1345	TN1345	TN1345	AKM3	16E	AKM3	16E	AKM3	16E	AKM3	16E	TN1345	TN1345	TN1345	TN1345	494RA	494RA		WRG OPT	SEE NOTE OR REFERENCE
	EQL	04-006	04-014	04-022	04-030	04-038	04-046	04-063	04-069	04-082	04-088	04-101	04-107	04-120	04-126	04-138	04-146	04-154	04-162	04-170	04-178			
	APP OPT							U		U		U		U										
GRD04120														<G> 001 017 018 019 020 022 036 038 039 102 103 104 105 106 107 108 114 115 124 140 146 147 212 228 244 304 316 332 348										
GRD04126															<G> 009 017 025 033 046 108 116 124 132 138 140 208 210 212 214 216 218 220 222 224 226 228 230 232 244 304 308 310 312 314 316 318 320 322 324 326 328 330 332 344										

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TRANSMISSION RATE CONVERTER UNIT MODEL 2

DWG SIZE: C2 | ISSUE: 3B

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LEAD DESIG	CODE	494RA	494RA	TN1345	TN1345	TN1345	TN1345	AKM3	16E	AKM3	16E	AKM3	16E	AKM3	16E	TN1345	TN1345	TN1345	TN1345	494RA	494RA		WRG OPT	SEE NOTE OR REFERENCE
	EQL	04-006	04-014	04-022	04-030	04-038	04-046	04-063	04-069	04-082	04-088	04-101	04-107	04-120	04-126	04-138	04-146	04-154	04-162	04-170	04-178			
	APP OPT							U		U		U		U										
GRD04138																<G> 004 008 013 016 020 021 034 040 052 104 108 113 116 120 121 139 148 152 200 201 202 204 206 208 210 212 214 216 218 220 222 223 224 232 233 234 236 238 240 242 244 246 248 250 252 254 255 256 300 301 302 306 308 310 312 314 316 318 320 322 323 324 332 333 334 336 338 340 342 344 346 348 350 352 354 355 356 <D> 011								

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TRANSMISSION RATE CONVERTER UNIT MODEL 2

DWG SIZE: C2

ISSUE: 3B

AT&T

SD-5D086-02

SHEET: BC20

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	CODE	494RA	494RA	TN1345	TN1345	TN1345	TN1345	AKM3	16E	AKM3	16E	AKM3	16E	AKM3	16E	TN1345	TN1345	TN1345	TN1345	494RA	494RA		WRG	SEE NOTE
LEAD	EQL	04-006	04-014	04-022	04-030	04-038	04-046	04-063	04-069	04-082	04-088	04-101	04-107	04-120	04-126	04-138	04-146	04-154	04-162	04-170	04-178		OPT	OR
DESIG	APP OPT							U		U		U		U										REFERENCE
GRD04146																	<0> 004 008 013 016 020 021 034 040 052 104 108 113 116 120 121 139 148 152 200 201 202 204 206 208 210 212 214 216 218 220 222 223 224 232 233 234 236 238 240 242 244 246 248 250 252 254 255 256 300 301 302 306 308 310 312 314 316 318 320 322 323 324 332 333 334 336 338 340 342 344 346 348 350 352 354 355 356							

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TRANSMISSION RATE CONVERTER
UNIT MODEL 2

DWG SIZE	ISSUE
C2	3B

AT&T	SD-5D086-02	SHEET
		BC21

PRINTED IN U.S.A

	CODE	494RA	494RA	TN1345	TN1345	TN1345	TN1345	AKM3	16E	AKM3	16E	AKM3	16E	AKM3	16E	TN1345	TN1345	TN1345	TN1345	494RA	494RA		WRG	SEE NOTE
LEAD	EQL	04-006	04-014	04-022	04-030	04-038	04-046	04-063	04-069	04-082	04-088	04-101	04-107	04-120	04-126	04-138	04-146	04-154	04-162	04-170	04-178		OPT	OR
DESIG	APP OPT							U		U		U		U										REFERENCE
GRD04154																		<G> 004 008 013 016 020 021 034 040 052 104 108 113 116 120 121 139 148 152 200 201 202 204 206 208 210 212 214 216 218 220 222 223 224 232 233 234 236 238 240 242 244 246 248 250 252 254 255 256 300 301 302 306 308 310 312 314 316 318 320 322 323 324 332 333 334 336 338 340 342 344 346 348 350 352 354 355 356 <D> 011							

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TRANSMISSION RATE CONVERTER UNIT MODEL 2

DWG SIZE	ISSUE
C2	3B

AT&T	SD-5D086-02	SHEET
		BC22

PRINTED IN U.S.A

LEAD	CODE	494RA	494RA	TN1345	TN1345	TN1345	TN1345	AKM3	16E	AKM3	16E	AKM3	16E	AKM3	16E	TN1345	TN1345	TN1345	TN1345	494RA	494RA		WRG	SEE NOTE
	EQL	04-006	04-014	04-022	04-030	04-038	04-046	04-063	04-069	04-082	04-088	04-101	04-107	04-120	04-126	04-138	04-146	04-154	04-162	04-170	04-178		OPT	OR
DESIG	APP OPT							U		U		U		U										REFERENCE
GRD04162																			<G> 004 008 013 016 020 021 034 040 052 104 108 113 116 120 121 139 148 152 200 201 202 204 206 208 210 212 214 216 218 220 222 223 224 232 233 234 236 238 240 242 244 246 248 250 252 254 255 256 300 301 302 306 308 310 312 314 316 318 320 322 323 324 332 333 334 336 338 340 342 344 346 348 350 352 354 355 356					

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TRANSMISSION RATE CONVERTER UNIT MODEL 2

DWG SIZE	ISSUE
C2	3B

AT&T	SD-5D086-02	SHEET
		BC23

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LEAD DESIG	CODE	494RA	494RA	TN1345	TN1345	TN1345	TN1345	AKM3	16E	AKM3	16E	AKM3	16E	AKM3	16E	TN1345	TN1345	TN1345	TN1345	494RA	494RA		WRG	SEE NOTE
	EQL	04-006	04-014	04-022	04-030	04-038	04-046	04-063	04-069	04-082	04-088	04-101	04-107	04-120	04-126	04-138	04-146	04-154	04-162	04-170	04-178		OPT	OR
	APP OPT							U		U		U		U										REFERENCE
GRD04170																				<0> 032 033 034 035 036 037 038 039 040 041 042 043 119 132 133 134 135 136 137 138 139 140 141 142 143				
GRD04178																					<0> 045 046 047 048 049 050 051 052 053 054 055 056 118 145 146 147 148 149 150 151 152 153 154 155 156			

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TRANSMISSION RATE CONVERTER UNIT MODEL 2

DWG SIZE: C2 | ISSUE: 3B

AT&T | SD-5D086-02 | SHEET: BC24

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APP. FIG. 1

CIRCUIT PACK

OPTION	DESIG	EQPT LOC	FS LOC	CLEI CODE	CODE
	0A_PWR	04-006	1F1	PWBQ54AAXX	494RA
	0B_PWR	04-014	1F6	PWBQ54AAXX	494RA
	0AE	04-022	3F0	E5ICD01AXX	TN1345
	0AO	04-030	3F6	E5ICD01AXX	TN1345
	1AE	04-138	3F0	E5ICD01AXX	TN1345
	1AO	04-146	3F6	E5ICD01AXX	TN1345
	1A_PWR	04-170	1F1	PWBQ54AAXX	494RA
	1B_PWR	04-178	1F6	PWBQ54AAXX	494RA

PB

OPTION	DESIG	EQPT LOC	FS LOC	CODE
Y	J1	06-162	5C1	982TR
Y	J2	05-162	5D1	982TR
Y	J3	06-154	5E6	982TR
Y	J4	05-154	5E1	982TR
Y	J5	06-146	5D6	982TR
Y	J7	05-146	5G1	982TR
Y	J9	06-138	5E6	982TR
Y	J11	05-138	5G6	982TR
Y	J13	06-046	5B1	982TR
Y	J14	05-046	5D1	982TR
Y	J15	06-038	5C6	982TR
Y	J16	05-038	5E1	982TR
Y	J17	06-030	5D6	982TR
Y	J19	05-030	5F1	982TR
Y	J21	06-022	5E6	982TR
Y	J23	05-022	5F6	982TR

APP. FIG. 2

CIRCUIT PACK

OPTION	DESIG	EQPT LOC	FS LOC	CLEI CODE	CODE
Y	04-038	04-038	4F0	E5ICD01AXX	TN1345
Y	04-046	04-046	4F6	E5ICD01AXX	TN1345
Y	04-154	04-154	4F0	E5ICD01AXX	TN1345
Y	04-162	04-162	4F6	E5ICD01AXX	TN1345

APP. FIG. 3

CIRCUIT PACK

OPTION	DESIG	EQPT LOC	FS LOC	CLEI CODE	CODE
U	0A_DS3	04-053	3H3	DMCBA80EXX	AKM3
U	1A_DS3	04-101	3H3	DMCBA80EXX	AKM3

APP. FIG. 4

CIRCUIT PACK

OPTION	DESIG	EQPT LOC	FS LOC	CLEI CODE	CODE
U	0B_DS3	04-082	4H3	DMCBA80EXX	AKM3
U	1B_DS3	04-120	4H3	DMCBA80EXX	AKM3

APP. FIG. 5

CIRCUIT PACK

OPTION	DESIG	EQPT LOC	FS LOC	CLEI CODE	CODE
T	0A_OLI	04-069	3F4	M3RG3300XX	16K
X	0A_OLI	04-069	3F4	M3RG3000XX	16E
V	0A_OLI	04-069	3F4	M3RG3200XX	16G
W	0A_OLI	04-069	3F4	M3RG3100XX	16F
S	0A_OLI	04-069	3F4	M3GGZZTDAA	16E2
R	0A_OLI	04-069	3F4	M3RGZ0TDAA	16F2
X	1A_OLI	04-107	3F4	M3RG3000XX	16E
T	1A_OLI	04-107	3F4	M3RG3300XX	16K
V	1A_OLI	04-107	3F4	M3RG3200XX	16G
W	1A_OLI	04-107	3F4	M3RG3100XX	16F
S	1A_OLI	04-107	3F4	M3RGZZTDAA	16E2
R	1A_OLI	04-107	3F4	M3RGZ0TDAA	16F2

APP. FIG. 6

CIRCUIT PACK

OPTION	DESIG	EQPT LOC	FS LOC	CLEI CODE	CODE
V	0B_OLI	04-088	4E4	M3RG3200XX	16G
W	0B_OLI	04-088	4E4	M3RG3100XX	16F
X	0B_OLI	04-088	4E4	M3RG3000XX	16E
T	0B_OLI	04-088	4E4	M3RG3300XX	16K
S	0B_OLI	04-088	4E4	M3RGZZTDAA	16E2
R	0B_OLI	04-088	4E4	M3RGZ0TDAA	16F2
T	1B_OLI	04-126	4E4	M3RG3300XX	16K
W	1B_OLI	04-126	4E4	M3RG3100XX	16F
V	1B_OLI	04-126	4E4	M3RG3200XX	16G
X	1B_OLI	04-126	4E4	M3RG3000XX	16E
S	1B_OLI	04-126	4E4	M3RGZZTDAA	16E2
R	1B_OLI	04-126	4E4	M3RGZ0TDAA	16F2

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TRANSMISSION RATE CONVERTER
UNIT MODEL 2

DWG SIZE	ISSUE
C2	4M

AT&T	SD-5D086-02	SHEET
		C1

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CIRCUIT NOTES

101.

DESIG	FUSE AMP	POTENTIAL	ONE PER
	5	-48	SIDE

BATTERY SYMBOL	VOLTAGE RANGE

EQUIPMENT NOTES

201.
UNLESS OTHERWISE SPECIFIED, WIRING SHALL BE PRINTED WIRING PATHS LOCATED IN MULTILAYER PRINTED WIRING BOARD ED-5D657.

202.

APPARATUS CODE	CIRCUIT PACK REMOVAL PROCEDURE		
	PULL HOT	REMOVE UNIT POWER	SEQUENCED
TN1345 HOST	X		
TN1345 REMOTE		X	
AKM3	X		
1AE,E2,F,F2,G,K HOST	X		
1BE,F,G,K REMOTE		X	

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TRANSMISSION RATE CONVERTER
UNIT MODEL 2

DWG SIZE: C2
ISSUE: 4M

AT&T | SD-5D086-02 | SHEET D1

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INFORMATION NOTES.

301. UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS.
CAPACITANCE VALUES ARE IN MICROFARADS.
VALUES PRECEDED BY THE SYMBOL + (PLUS) OR - (MINUS) ARE IN VOLTS.

302.

FEATURE OR OPTION	PROVIDE APP FIG	PROVIDE APP OPT	QUANTITY
ASSEMBLY,WIRING AND EQUIPMENT FOR ONE DIRECT FIBER TRANSMISSION RATE CONVERTER UNIT E/W ONE ACTIVE AND ONE STANDBY CIRCUIT	1		1 PER UNIT
HOST APPLICATION		Y	
REMOTE APPLICATION		Z	
SM2000 DRM APPLICATIONS		Q	
APPARATUS REQUIRED TO PROVIDE ONE ADDITIONAL ACTIVE AND STANDBY CIRCUIT FOR A HOST INTERFACING WITH TWO REMOTE SITES.	2	Y	1 PER UNIT AS REQUIRED
APPARATUS REQUIRED IN ADDITION TO APPARATUS FIGURE 1 FOR 45 MBIT/SEC ELECTRICAL TRANSMISSION	3	U	1 PER APP FIG. 1 AS REQUIRED
APPARATUS REQUIRED IN ADDITION TO APPARATUS FIGURE 2 FOR 45 MBIT/SEC ELECTRICAL TRANSMISSION	4	U	1 PER APP FIG. 2 AS REQUIRED
APPARATUS REQUIRED IN ADDITION TO APPARATUS FIGURE 1 FOR 90 MBIT/SEC OPTICAL TRANSMISSION	5		1 PER APP FIG. 1 AS REQUIRED
0 TO 18 MILES (0-17.5 DB)		X	
0 TO 28 MILES (0-22.0 DB)		#	
10 TO 38 MILES (7-28.0 DB)		V	
17 TO 44.9 MILES (13.7-28 DB)		T	
0 TO 37.8 MILES (0-28.9 DB)		R	
0 TO 25.1 MILES (0-23.8 DB)		S	
APPARATUS REQUIRED IN ADDITION TO APPARATUS FIGURE 2 FOR 90 MBIT/SEC OPTICAL TRANSMISSION	6		1 PER APP FIG. 2 AS REQUIRED
0 TO 18 MILES (0-17.5 DB)		X	
0 TO 28 MILES (0-22.0 DB)		W	
10 TO 38 MILES (7-28.0 DB)		V	
17 TO 44.9 MILES (13.7-34.0 DB)		T	
0 TO 37.8 MILES (0-28.9 DB)		R	
0 TO 25.1 MILES (0-23.8 DB)		S	
APPARATUS REQUIRED IN ADDITION TO APPARATUS FIGURE 2 FOR 90 MBIT/SEC OPTICAL TRANSMISSION AND 45 MBIT/SEC ELECTRICAL TRANSMISSION	7		1 PER APP FIG. 2 AS REQUIRED
0 TO 18 MILES (0-17.5 DB)		X	
0 TO 28 MILES (0-22.0 DB)		W	
10 TO 38 MILES (7-28.0 DB)		V	
0 TO 100 MILES		U	
17 TO 44.9 MILES (13.7-34.0 DB)		T	
0 TO 37.8 MILES (0-28.9 DB)		R	
0 TO 25.1 MILES (0-23.8 DB)		S	

INFORMATION NOTES: (CONT.)

303.

RECORD OF FIGURES, WIRING AND APPARATUS CHANGES						
CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT STD	A&M	MD
2M	Z,Y	Z	302	Z,Y		
5B	Q,P	P	302	Q		

304. LIGHTWAVE CABLING:
THE TRCU-2 PROVIDES BACKPLANE ACCESS FOR THE OPTICAL FIBER CABLING TO AND FROM THE CABLE INTERCONNECTION POINT [LIGHT GUIDE CROSS CONNECT (LGX)] AS A STANDARD OFFERING. TWO SHORT OPTICAL FIBER PIGTAILS EXIT THE LOWER PORTION OF THE 16E,F AND G CIRCUIT PACKS AND ARE DRESSED BACK TO CONNECT TO A FIBER COUPLER. THE OPTICAL FIBER CABLE FROM THE LGX EQUIPMENT IS DRESSED THRU THE BACKPLANE AND CONNECTED TO THE COUPLER.

TRANSMIT:
IF THE OUTSIDE PLANT FIBER IS SINGLE MODE, THE INTRA-OFFICE TRANSMIT DIRECTION USES ONLY SINGLE MODE FIBER. IF THE OUTSIDE PLANT FIBER IS MULTIMODE, THE INTRA-OFFICE DIRECTION CAN USE SINGLE MODE OR MULTMODE FIBER. THE OL TRANSMIT PIGTAIL IS ALWAYS SINGLE MODE WITH A BICONIC CONNECTOR (YELLOW) LABELED 'OUT' AND USES A 1012A COUPLER.

RECIEVE:
IF THE OUTSIDE PLANT FIBER IS SINGLE MODE, THE INTRA-OFFICE RECEIVE DIRECTION USES SINGLE MODE OR MULTIMODE FIBER. IF THE OUTSIDE PLANT FIBER IS MULTIMODE, THE INTRA-OFFICE DIRECTION USES ONLY MULTIMODE FIBER. THE OL RECEIVE PIGTAIL IS ALWAYS MULTIMODE WITH A BICONIC CONNECTOR (BLACK) LABELED 'IN' AND USES A 1002A COUPLER.

305. DSX-3 CABLING:
THE TRCU-2 PROVIDES BACKPLANE ACCESS FOR THE CABLING TO AND FROM THE DS3-CROSS CONNECT, (DSX-3) AS A STANDARD OFFERING. A SHIELDED COAX CABLE FROM THE DSX-3 TERMINATES ON THE AKM3 CIRCUIT PACK. THIS CABLE IS DRESSED THRU THE BACKPLANE. FEMALE BCN CONNECTORS ARE MOUNTED ON THE AKM3 CIRCUIT PACKS AND MATE WITH A RIGHT ANGLED MALE BNC CONNECTOR (28P149-11 CONNECTOR FROM SPECIALTY CONNECTOR CO. OR EQUIVALENT) THAT TERMINATE THE COAX CABLE.

306. WHEN THE ALTERNATE ROUTE OF THE ODD (EVEN) LINK FROM SIDE "0" AND THE ODD (EVEN) LINK FROM SIDE "1" DIFFER IN DELAY BY MORE THAN 20 MICROSECONDS (APPROXIMATELY 2.5 MILES IN LENGTH) A SLIP CAN OCCUR. THE SLIP WILL OCCUR WHEN THE "TSI" SWITCHES SIDES (LIKE DURING THE DIAGNOSTIC ROUTINE "FORCE ONTO SWITCH"). A SLIP IS A FRAME OF DATA WHICH IS LOST OR REPEATED. THESE SLIPS ARE ONLY DETECTED BY SUBSCRIBERS WHO ARE TRANSMITTING DATA WHICH IS NON-ISDN WITHOUT PROTOCOLS. IF THESE SLIPS CANNOT BE TOLERATED THE FOLLOWING RESTRICTIONS MUST BE ADHERED TO.

THE ODD (EVEN) LINKS FROM SIDE "0" AND THE ODD (EVEN) LINK FROM SIDE "1" MUST NOT DIFFER IN DELAY BY MORE THAN 20 MICROSECONDS (APPROXIMATELY 2.5 MILES IN LENGTH). IF THE INTERFACE IS ELECTRICAL THE ODD (EVEN) LINKS FROM SIDE "0" AND SIDE "1" CAN HAVE THE SAME ROUTE AND THE EVEN (ODD) LINKS AN ALTERNATE ROUTE WHICH WOULD ALLOW THESE ROUTES TO DIFFER BY A DELAY OF MORE THAN 20 MICROSECONDS (2.5 MILES). IF THE INTERFACE IS OPTICAL THE ODD AND EVEN LINKS ARE ON THE SAME FIBER SO THE DIFFERENCE IN DELAY CANNOT BE MORE THAN 20 MICROSECONDS (2.5 MILES) AND THE RESTRICTION IS REQUIRED.

INFORMATION NOTES: (CONT.)

307. AT BOTH THE HOST AND REMOTE LOCATIONS THE CABLING BETWEEN THE TRCU2 AND THE DSX-3 BAY MUST NOT EXCEED 450 FEET IN LENGTH. IN ADDITION THIS CABLING MUST BE ROUTED WITHIN 3 FEET OF THE 5ESS GROUND WINDOW AT SOME POINT IN ITS LENGTH. THE COAX SHIELD MUST BE GROUNDED AT THE GROUND WINDOW WITH A GROUND LEAD NO GREATER THAN 3 FEET IN LENGTH. (COAX JACK-JACK BULKHEAD CONNECTORS THROUGH A BUS BAR GROUNDED TO THE GROUND WINDOW IS ACCEPTABLE.)

308. THE FIBER NOT LINKS BETWEEN THE CM1 (TMS) OR CM2 AND THE TRCU2 HAVE THE PRESENT 1000 FEET CABLE LENGTH LIMITATION.

309. THE CABLES BETWEEN THE TRCU2 AND THE MCTU(2) OR TSIU4 HAVE A CABLE LENGTH LIMITATION OF 4.0 FEET.

310.

PARAMETER		OLI 16E	16F	16G	16K	16E2	16F2
WAVELENGTH		1305 +/- 30NM	1305 +/- 20NM	1305 +/- 20NM	1305 +/- 20NM	1305 +/- 30NM	1305 +/- 30NM
TYPE OF TRANSMITTER		SINGLE MODE	SINGLE MODE	SINGLE MODE	SINGLE MODE	SINGLE MODE	SINGLE MODE
TRANSMITTER OUTPUT POWER-HI (1)		-10 DBM	-10 DBM	-4 DBM	+2.0 DBM	-4.1 DBM +/-1 DB	-4.1 DBM +/-1 DB
TRANSMITTER OUTPUT POWER-LW (1)		-16 DBM	-16 DBM	-10 DBM	-4.0 DBM	-8.1 DBM +/-1 DB	-9.1 DBM +/-1 DB
RECEIVER SENSITIVITY FOR BER-10E-9		-34 DBM	-38.5 DBM	-38.5 DBM	-38.5 DBM	-34.4 DBM	-39.5 DBM
AVAILABLE SYSTEM GAIN		24 DB	28.5 DB	34.5 DB	40.5 DB	30.3 DB	39.4 DB
EYE MARGIN		3.5 DB	3.5 DB	3.5 DB	3.5 DB	3.5 DB	3.5 DB
EQUIPMENT MARGIN		3 DB	3 DB	3 DB	3 DB	3.3 DB	3.0 DB
MAXIMUM FACILITY LOSS		17.5 DB	22 DB	28 DB	34 DB	23.8 DB	28.9 DB
MINIMUM FACILITY LOSS		0 DB	0 DB	7 DB	0 DB	0 DB	0 DB
CONNECTOR LOSS		1.5 DB	1.5 DB	1.5 DB	1.5 DB	1.5 DB	1.5 DB
SINGLE MODE FIBER	OUTSIDE PLANT BUDGET (1305 +/- 30NM)	16 DB	20.5 DB	26.5 DB	32.5 DB	22.3 DB	27.4 DB
	SPAN LENGTH (2)	29 KM (18 MI)	45.5 KM (29.3 MI)	53.9 KM (36.3 MI)	72.2 KM (44.8 MI)	40.8 KM (25.1 MI)	60.9 KM (37.8 MI)
MULTI MODE FIBER	DISPERSION AND MODAL NOISE ALLOCATION (3)	3 DB	3 DB	3 DB	3 DB	3 DB	3 DB
	OUTSIDE PLANT BUDGET (1305 +/- 30NM)	13 DB	17.5 DB	23.5 DB	29.5 DB	19.3DB	24.4DB
	SPAN LENGTH (4)	13 KM (8 MI)	17.5 KM (10.8 MI)	23.5 KM (14.6 MI)	29.5 KM (18.3 MI)	19.3KM (12.0 MI)	24.4 KM (15.2 MI)

(1) THE TRANSMITTER HAS A 6 DB SWITCH. POWER OUTPUT MAY BE SELECTED AS HI OR LW. SELECTION IS BASED ON THE INSTALLED CABLE LOSS.

(2) ASSUMES 0.55 DB/KM AVERAGE CABLE PLUS SPLICE LOSS (MEDIUM LOSS FIBER) FOR THE 16E AND 0.45 DB/KM AVERAGE CABLE PLUS SPLICE LOSS (LOW LOSS FIBER) FOR THE 16F AND 16G.

(3) ASSUMES 80 MHZ END-TO-END FIBER BANDWIDTH.

(4) ASSUMES 1.0 DB/KM AVERAGE CABLE PLUS SPLICE LOSS (MEDIUM LOSS FIBER).

311. A MINIMUM OF ONE TRCU2 CAN BE EQUIPPED IN AN EXM2000 REMOTE OFFICE WITH 4 NCT LINKS. A MAXIMUM OF 8 TRCU2'S CAN BE EQUIPPED IN AN EXM2000 REMOTE OFFICE WITH 24 NCT LINKS.

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TRANSMISSION RATE CONVERTER UNIT MODEL 2

DWG SIZE C2 | ISSUE 5B

AT&T | SD-5D086-02 | SHEET D2

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INFORMATION NOTE: (CONT.)

311.

OLI PACK TRANSMITTER SWITCH			
		TRANSMITTER SWITCH	
		LOW	HIGH
TRANSMITTER	RECEIVER	FACILITY LOSS	
16E OR 16F	16E	0 TO 9 DB	9 TO 17.5 DB
16E OR 16F	16F OR 16G	0 TO 11 DB	11 TO 22 DB
16G	16E	7 TO 15 DB	15 TO 23.5 DB
16G	16F OR 16G	7 TO 16 DB	16 TO 26 DB
16K	16F,G,K	13 TO 22 DB	22 TO 34 DB
16K	16E	13 TO 21 DB	21 TO 29.5 DB

INFORMATION NOTE: (CONT.)

312. GIVEN:

	16E	16E2	16F	16F2	16G	16K
TX OUTPUT (HI)	-10	-4.1	-10	-4.1	-4	+2
TX OUTPUT (LO)	-16	-9.1	-16	-9.1	-10	-4
RX OVERLOAD	-15.3	-7	-15	-7	-15	-15
RX SENSITIVITY	-34	-34.4	-38.5	-39.5	-38.5	-38.5

FACILITY LOSS CALCULATIONS:

MIN. FAC. LOSS = TX OUTPUT (LO) - RX OVERLOAD + 2 DB TX MARGIN

MAX. FAC. LOSS = TX OUTPUT (HI) - RX SENS - 6.5 DB EYE AND EQUIPMENT MARGIN

OLI PACK TRANSMITTER SWITCH			
		TRANSMITTER SWITCH	
		LOW	HIGH
TRANSMITTER	RECEIVER	FACILITY LOSS	
16E2	16E2	0 TO 11	11 TO 23.8 DB
16E2	16E	9 TO 16	16 TO 23.4 DB
16E2	16F	6 TO 17	17 TO 27.9 DB
16E2	16F2	0 TO 14	14 TO 28.9 DB
16E2	16G	6 TO 17	17 TO 27.9 DB
16E2	16K	6 TO 17	17 TO 27.9 DB
16E	16E2	0 TO 6	6 TO 17.9 DB
16F	16E2	0 TO 6	6 TO 17.9 DB
16F2	16E2	0 TO 11	11 TO 23.8 DB
16G	16E2	0 TO 11	11 TO 23.9 DB
16K	16E2	5 TO 17	17 TO 29.9 DB

TABLE 1. FACILITY LOSS FOR THE 16E2 OLIU.

OLI PACK TRANSMITTER SWITCH			
		TRANSMITTER SWITCH	
		LOW	HIGH
TRANSMITTER	RECEIVER	FACILITY LOSS	
16F2	16F2	0 TO 14	14 TO 28.9 DB
16F2	16E	9 TO 16	16 TO 23.4 DB
16F2	16E2	0 TO 11	11 TO 23.8 DB
16F2	16F	6 TO 17	17 TO 27.9 DB
16F2	16G	6 TO 17	17 TO 27.9 DB
16F2	16K	6 TO 17	17 TO 27.9 DB
16E	16F2	0 TO 11	11 TO 23.0 DB
16E2	16F2	0 TO 14	14 TO 28.9 DB
16F	16F2	0 TO 11	11 TO 23.0 DB
16G	16F2	0 TO 14	14 TO 29.0 DB
16K	16F2	5 TO 20	20 TO 35.0 DB

TABLE 2. FACILITY LOSS FOR THE 16F2 OLIU.

INFORMATION NOTE: (CONT.)

312. (CONT.)

TABLE 3. 16-TYPE OLIU FACILITY LOSS AND SINGLE MODE SPAN LENGTH.

CO	RT	MAX. FAC. LOSS	MAX. SM SPAN LENGTH
16E	16E	17.5 DB	35.6 KM (22.1 MI)
16E	16F	17.5 DB	35.6 KM (22.1 MI)
16E	16E2	17.9 DB	36.5 KM (22.6 MI)
16E	16G	22.0 DB	45.6 KM (28.3 MI)
16E	16F2	23.0 DB	47.8 KM (29.7 MI)
16F	16E	17.5 DB	35.6 KM (22.1 MI)
16F	16E2	17.9 DB	36.5 KM (22.6 MI)
16F	16F	22.0 DB	45.6 KM (28.3 MI)
16F	16G	22.0 DB	45.6 KM (28.3 MI)
16F	16F2	23.0 DB	47.8 KM (29.7 MI)
16G	16E	22.0 DB	45.6 KM (28.3 MI)
16G	16F	22.0 DB	45.6 KM (28.3 MI)
16G	16E2	24.4 DB	50.9 KM (31.6 MI)
16G	16F2	27.9 DB	58.7 KM (36.4 MI)
16G	16G	28.0 DB	59.0 KM (28.3 MI)
16E2	16E	17.9 DB	36.5 KM (22.6 MI)
16E2	16F	17.9 DB	36.5 KM (22.6 MI)
16E2	16E2	23.8 DB	49.6 KM (30.7 MI)
16E2	16F2	23.8 DB	49.6 KM (30.7 MI)
16E2	16G	23.9 DB	49.6 KM (30.9 MI)
16F2	16E	23.0 DB	47.8 KM (29.7 MI)
16F2	16F	23.0 DB	47.8 KM (29.7 MI)
16F2	16E2	23.8 DB	49.6 KM (30.7 MI)
16F2	16G	27.9 DB	58.7 KM (36.4 MI)
16F2	16F2	28.9 DB	60.9 KM (37.8 MI)

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TRANSMISSION RATE CONVERTER UNIT MODEL 2

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DWG SIZE C2 | ISSUE 4M

AT&T | SD-5D086-02 | SHEET D3

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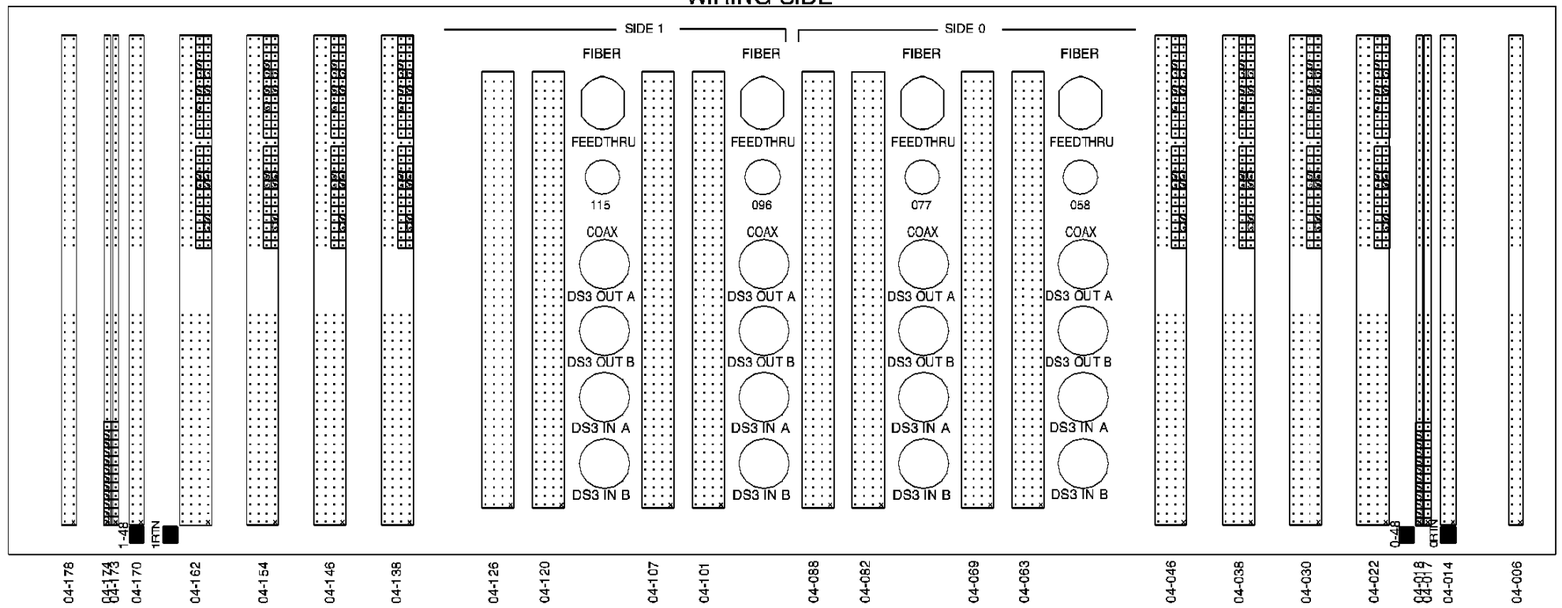
TRCU2
(BACKPLANE)

SD-5D086-02 (TRCU) UNIT ACCESS
WIRING SIDE



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TRANSMISSION RATE CONVERTER UNIT MODEL 2		MAY 10, 1989	
		DWG SIZE: C2	ISSUE: 2M
AT&T	SD-5D086-02	SHEET: GB1	

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UNIT SYMBOL

TERM MOD(OPTION)	FUNC	(CONNR)TERM	LOC
0AEDS3IN(U)	I	(0A_DS3INA)04-063-J11	2G2
0ADDS3IN(U)	I	(0A_DS3INB)04-063-J12	2G7
0AEDS3OT(U)	O	(0A_DS3OUTA)04-063-J9	2G2
0ADDS3OT(U)	O	(0A_DS3OUTB)04-063-J10	2G7
0ARCV(X+W+V+T)	I	(0A_LG(IN))04-069-LG(IN)	2B3
0ATRNS(X+W+V+T)	O	(0A_LG(OUT))04-069-LG(OUT)	2B6
0BEDS3IN(U)	I	(0B_DS3INA)04-082-J11	3G2
0BODS3IN(U)	I	(0B_DS3INB)04-082-J12	3G7
0BEDS3OT(U)	O	(0B_DS3OUTA)04-082-J9	3G2
0BODS3OT(U)	O	(0B_DS3OUTB)04-082-J10	3G7
0BRCV(X+W+V+T)	I	(0B_LG(IN))04-088-LG(IN)	3B2
0BTRNS(X+W+V+T)	O	(0B_LG(OUT))04-088-LG(OUT)	3B6
1AEDS3IN(U)	I	(1A_DS3INA)04-101-J11KT	2H2
1ADDS3IN(U)	I	(1A_DS3INB)04-101-J12	2H7
1AEDS3OT(U)	O	(1A_DS3OUTA)04-101-J9	2G2
1ADDS3OT(U)	O	(1A_DS3OUTB)04-101-J10	2G7
1ARCV(X+W+V+T)	I	(1A_LG(IN))04-107-LG(IN)	2C3
1ATRNS(X+W-V-T)	O	(1A_LG(OUT))04-107-LG(OUT)	2C6
1BEDS3IN(U)	I	(1B_DS3INA)04-120-J11	3G2
1BODS3IN(U)	I	(1B_DS3INB)04-120-J12	3G7
1BEDS3OT(U)	O	(1B_DS3OUTA)04-120-J9	3G2
1BODS3OT(U)	O	(1B_DS3OUTB)04-120-J10	3G7
1BRCV(X+W+V+T)	I	(1B_LG(IN))04-128-LG(IN)	3B2
1BTRNS(X+W-V-T)	O	(1B_LG(OUT))04-128-LG(OUT)	3B6
1AEDOOF(Z)	I	(J10)04-138-050	2A1
GRD04138(Z)	G	(J10)04-138-052	*D1
GRD04138(Z)	G	(J10)04-138-148	*D1
1ASELREF(Z)	I	(J10)04-138-150	2A0
GRD04138(Z)	G	(J10)04-138-152	*E1
1AENCTR(Z)	I	(J10)04-138-153	2A0
GRD04138(Z)	G	(J12)04-138-034	*D1
1AE8KREF(Z)	I	(J12)04-138-035	2A0
1AMSTR(Z)	I	(J12)04-138-039	2A1
GRD04138(Z)	G	(J12)04-138-040	*D1
GRD04138(Z)	G	(J12)04-138-137KT	*D1
1AENCTT(Z)	I	(J12)04-138-140	2A1
0AODOOF(Z)	I	(J18)04-030-050	2A7
GRD04030(Z)	G	(J18)04-030-052	*C1
GRD04030(Z)	G	(J18)04-030-148	*C1
0ASELREF(Z)	I	(J18)04-030-150	2A8
GRD04030(Z)	G	(J18)04-030-152	*C1
0AONCTR(Z)	I	(J18)04-030-153	2A9
GRD04030(Z)	G	(J20)04-030-034	*B1
0AE8KREF(Z)	I	(J20)04-030-035	2A9
0AMSTR(Z)	I	(J20)04-030-039	2A8
GRD04030(Z)	G	(J20)04-030-040	*C1
GRD04030(Z)	G	(J20)04-030-139	*C1
0AONCTT(Z)	I	(J20)04-030-140	2A8
0AEDOOF(Z)	I	(J22)04-022-050	2A1
GRD04022(Z)	G	(J22)04-022-052	*B1
GRD04022(Z)	G	(J22)04-022-148	*B1
0ASELREF(Z)	I	(J22)04-022-150	2A0
GRD04022(Z)	G	(J22)04-022-152	*B1
0AENCTR(Z)	I	(J22)04-022-153	2A0
GRD04022(Z)	G	(J24)04-022-034	*A1
0AE8KREF(Z)	I	(J24)04-022-035	2A0
0AMSTR(Z)	I	(J24)04-022-039	2A1
GRD04022(Z)	G	(J24)04-022-040	*B1
GRD04022(Z)	G	(J24)04-022-139	*B1
0AENCTT(Z)	I	(J24)04-022-140	2A1

UNIT SYMBOL

TERM MOD(OPTION)	FUNC	(CONNR)TERM	LOC
1AINT(Z)	O	(J25)04-174-000	4H2
1BINT(Z)	O	(J25)04-174-001	4G2
1DLIS3(Z)	O	(J25)04-174-002	4G2
1DLIS2(Z)	O	(J25)04-174-003	4F2
1DLIS1(Z)	O	(J25)04-174-004	4F2
1DLIAMP(Z)	O	(J25)04-174-005	4F2
1DLIALM(Z)	O	(J25)04-174-006	4E2
1DLIOOS(Z)	O	(J25)04-174-007	4E2
1DOOS48(Z)	O	(J25)04-174-008	4E2
0AINT(Z)	O	(J26)04-018-000	4G2
0BINT(Z)	O	(J26)04-018-001	4G2
0DLIS3(Z)	O	(J26)04-018-002	4G2
0DLIS2(Z)	O	(J26)04-018-003	4F2
0DLIS1(Z)	O	(J26)04-018-004	4F2
0DLIAMP(Z)	O	(J26)04-018-005	4F2
0DLIALM(Z)	O	(J26)04-018-006	4E2
0DLIOOS(Z)	O	(J26)04-018-007	4E2
0DOOS48(Z)	O	(J26)04-018-008	4D2
1AODOOF(Z)	I	(J6)04-146-050	2A8
GRD04146(Z)	G	(J6)04-146-052	*E1
GRD04146(Z)	G	(J6)04-146-148	*E1
1ASELREF(Z)	I	(J6)04-146-150	2A8
GRD04146(Z)	G	(J6)04-146-152	*F1
1AONCTR(Z)	I	(J6)04-146-153	2A9
GRD04146(Z)	G	(J8)04-146-034	*E1
1AO8KREF(Z)	I	(J8)04-146-035	2A9
1AMSTR(Z)	I	(J8)04-146-039	2A8
GRD04146(Z)	G	(J8)04-146-040	*E1
GRD04146(Z)	G	(J8)04-146-139	*E1
1AONCTT(Z)	I	(J8)04-146-140	2A8
1BONCTR(Y)	IO	(LG1)06-162-FO	5F7
1AENCTT(Y)	IO	(LG11)05-138-FO	5C3
0BONCTR(Y)	IO	(LG13)06-046-FO	5E7
0BONCTT(Y)	IO	(LG14)05-046-FO	5D7
0BENCTR(Y)	IO	(LG15)06-038-FO	5B7
0BENCTT(Y)	IO	(LG16)05-038-FO	5B7
0AONCTR(Y)	IO	(LG17)06-030-FO	5E3
0AONCTT(Y)	IO	(LG19)05-030-FO	5E3
1BONCTT(Y)	IO	(LG2)05-162-FO	5F7
0AENCTR(Y)	IO	(LG21)06-022-FO	5B3
0AENCTT(Y)	IO	(LG23)05-022-FO	5B3
1BENCTR(Y)	IO	(LG3)06-154-FO	5C7
1BENCTT(Y)	IO	(LG4)05-154-FO	5C7
1AONCTR(Y)	IO	(LG5)06-146-FO	5F3
1AONCTT(Y)	IO	(LG7)05-146-FO	5F3
1AENCTR(Y)	IO	(LG9)06-138-FO	5C3

* NOT SHOWN IN SCHEMATIC

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TRANSMISSION RATE CONVERTER
UNIT MODEL 2

DWG SIZE: C2
ISSUE: 3B

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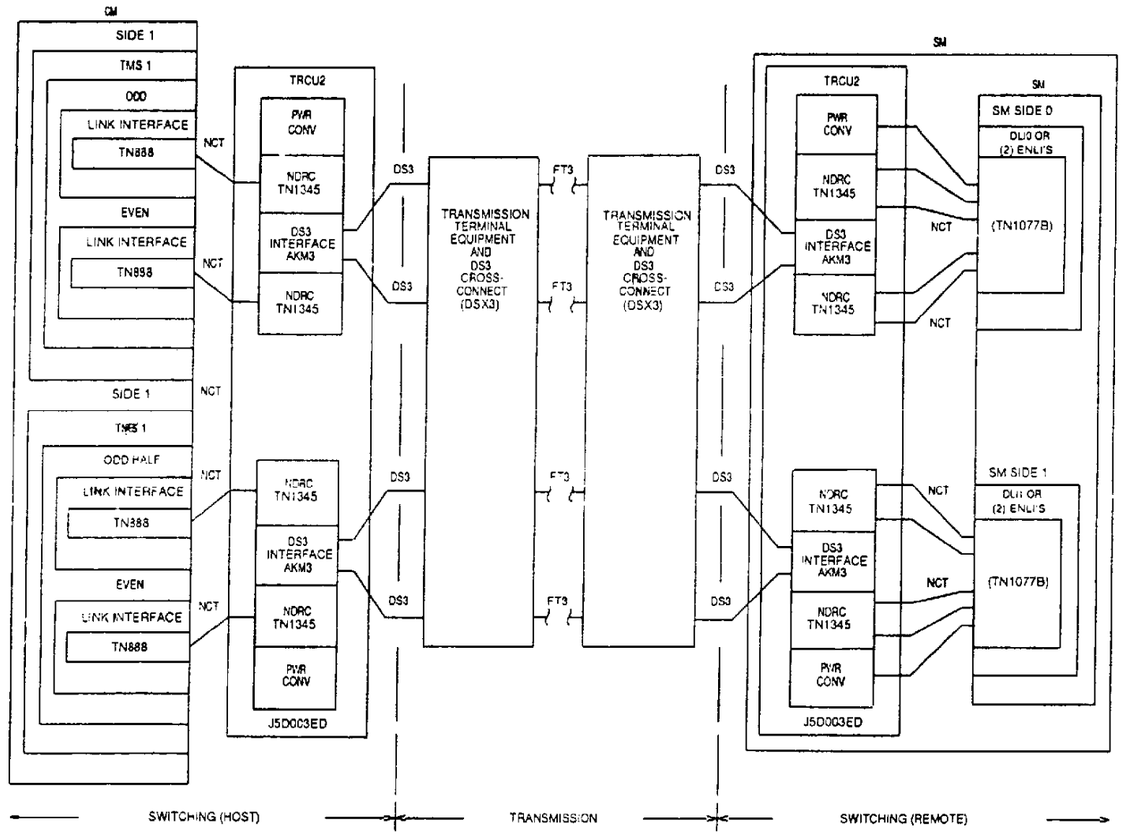
BD 1

SYSTEM APPLICATION DIAGRAM
ORM NCT LINKS
(DSX-3 CABLING)

NOTES:

1. THE MCTU(2) CAN BE EQUIPPED WITH MULTIPLE VERSIONS OF THE TN1077: TN1077B, TN1077C, TN1077D AND TN1077E.
2. THE BLOCK DIAGRAM SHOWS PRIMARY LINK EQUIPAGE. WITH ADDITIONAL TRCU2'S IN A SM2000 ORM CONFIGURATION A TOTAL OF 24 NCT LINKS (ELNI'S) CAN BE EQUIPPED.
3. THE DLI (TN1077) RESIDES IN THE MCTU(2). THE ENLI (BK03) RESIDES IN THE TSIU4, USED FOR SM2000 ORM APPLICATIONS.



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AT&T	SD-5D088-02		SHEET H1

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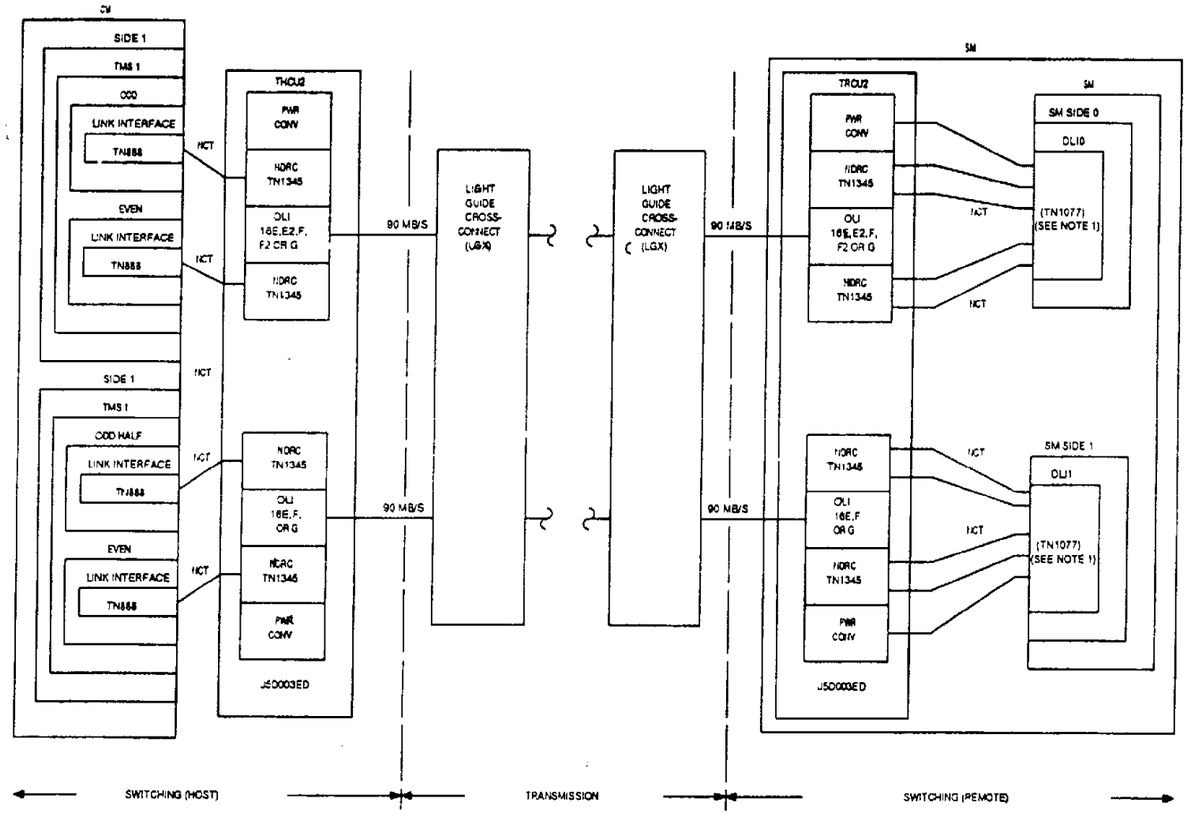
BD 2
SYSTEM APPLICATION DIAGRAM
- ORM NCT LINKS
(LIGHT WAVE CABLING)



NOTES:

1. THE MCTU(2) CAN BE EQUIPPED WITH MULTIPLE VERSIONS OF THE TN1077: TN1077B, TN1077C, TN1077D, TN1077E.
2. BLOCK DIAGRAM SHOWS PRIMARY LINK EQUIPPAGE WITH ADDITIONAL TRCU2'S IN A SM2000 ORM CONFIGURATION A TOTAL OF 24 NCT LINKS (ELNI'S) CAN BE EQUIPPED.
3. THE DLI (TN1077) RESIDES IN THE MCTU(2) SM. THE ENLI (BK03) RESIDES IN THE TSI04, USED FOR SM2000 ORM APPLICATIONS.

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AT&T	SD-5D086-02		SHEET H2

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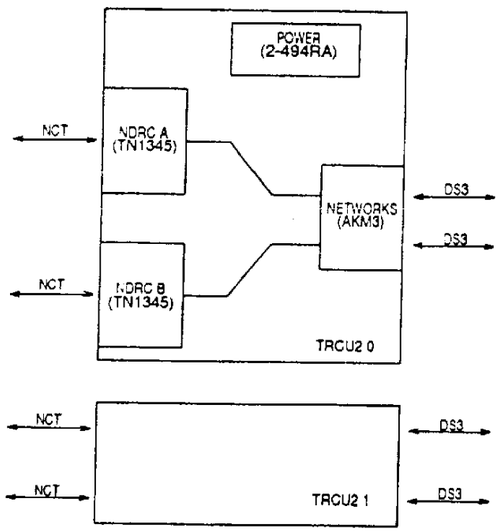
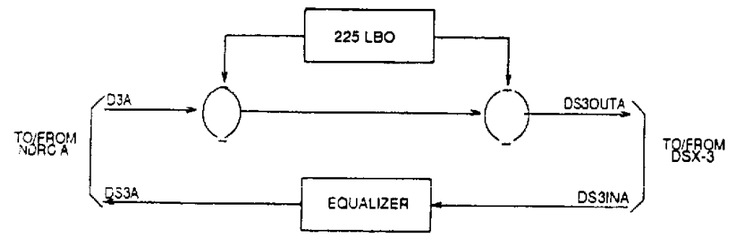
BD 3 & 4

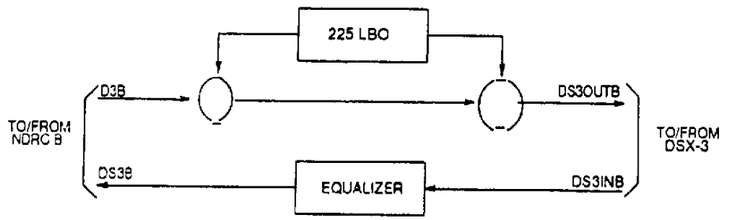
SYSTEM APPLICATION DIAGRAM
(DS3 CONNECT OPTION)

BD 3



BD 4





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TRANSMISSION RATE CONVERTER
UNIT MODEL 2

DWG SIZE	ISSUE
C2	5B

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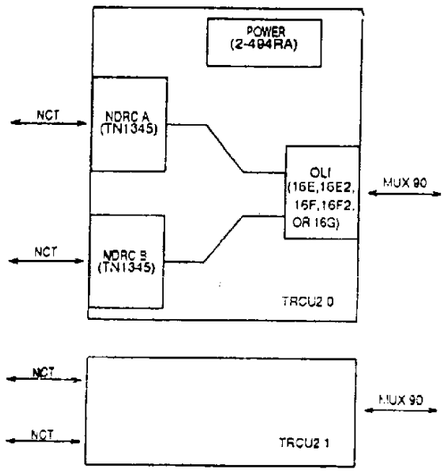
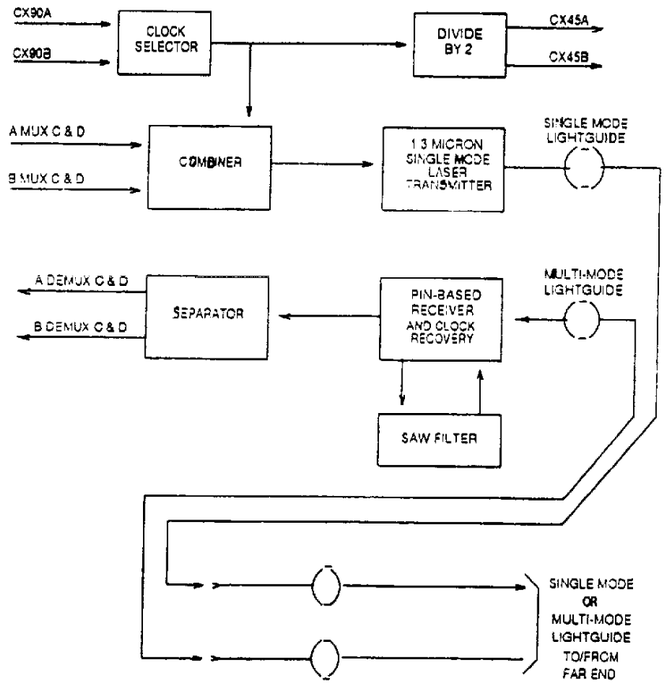
BD 5 & 6

SYSTEM APPLICATION DIAGRAM
(FIBER CONNECT OPTION)

BD 5



BD 6



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TRANSMISSION RATE CONVERTER UNIT MODEL 2	DWG SIZE	ISSUE
	C2	5B
AT&T	SD-5D086-02	SHEET H4

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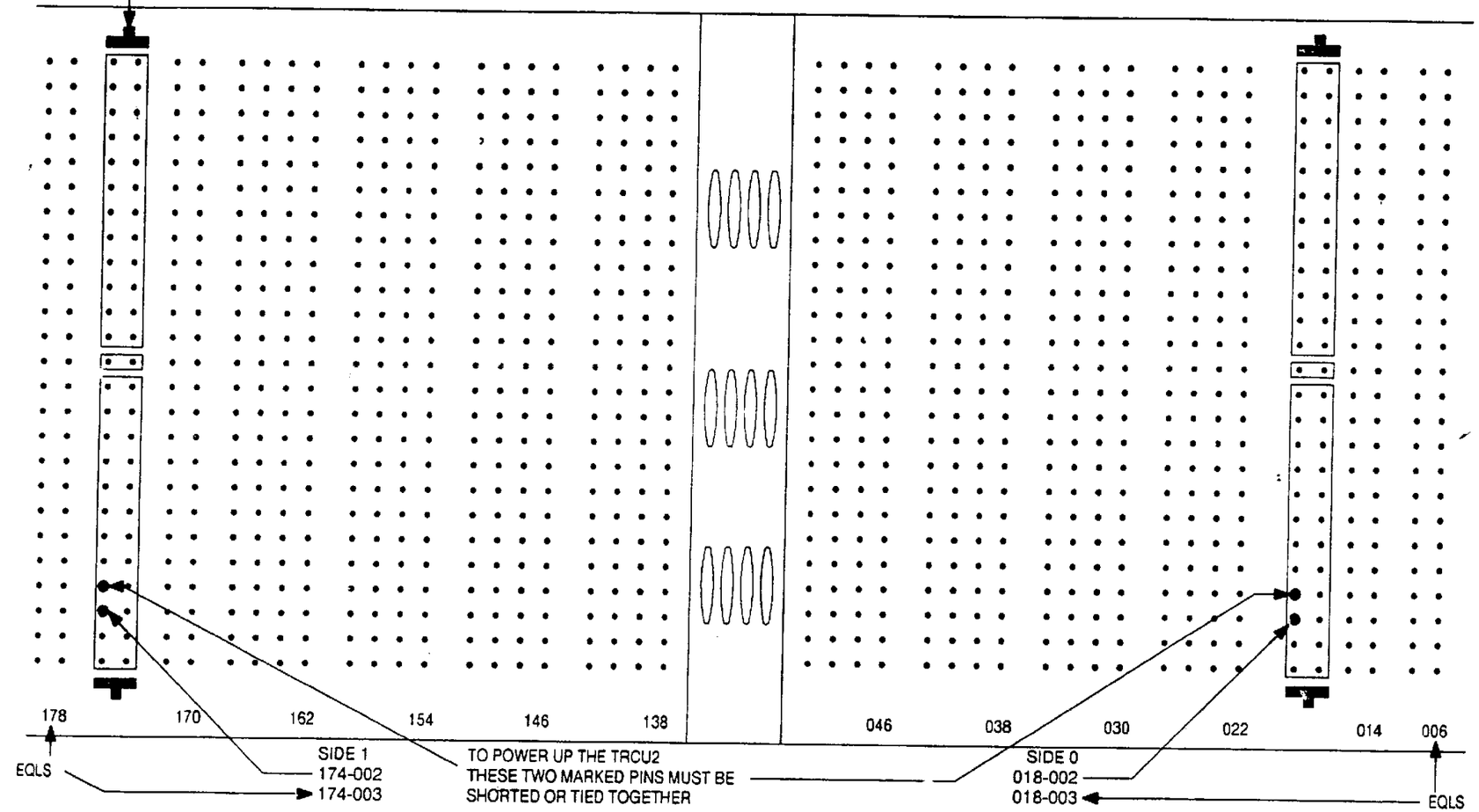
EXM2000 ORM TRCU2 BACKPLANE
VIEW FROM BACK SIDE OF UNIT
LOWER HALF OF TRCU2 SHELF PINS (X00-X24)
(USED WITH SM2K TSIU4 UNIT - OPTION (Y) WIRING



NOTES:
- CONNECTED PINS ARE MARKED WITH A BOLD DOT
- CONNECTED PINS EQLS ARE NOTED UNDER THE SIDE HEADINGS

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TRANSMISSION RATE CONVERTER UNIT MODEL 2	DWG SIZE C2	ISSUE 5B
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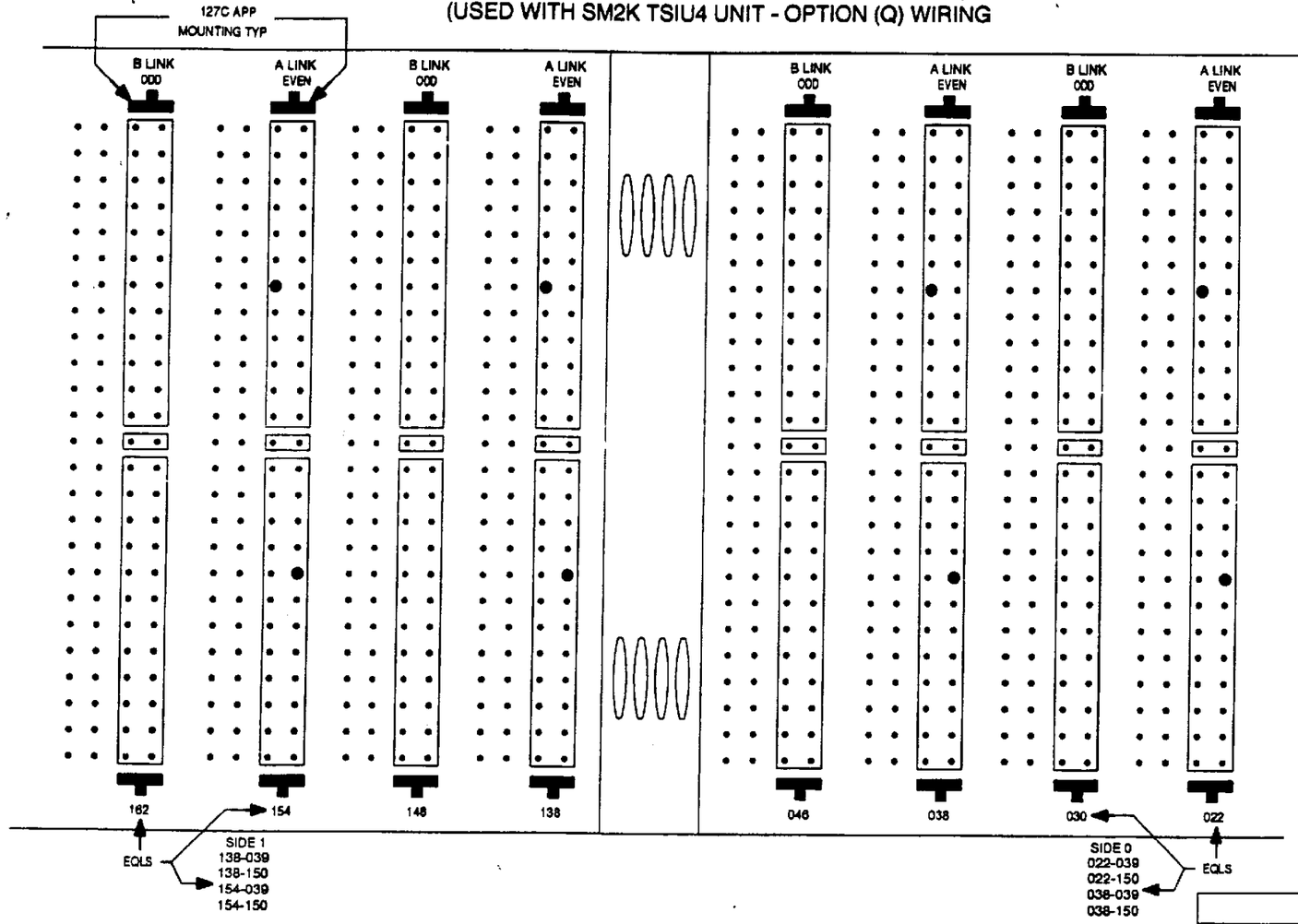
ORM TRCU2 BACKPLANE
VIEW FROM BACK SIDE OF UNIT
LOWER HALF OF TRCU2 SHELF PINS (X32-X56)
(USED WITH SM2K TSIU4 UNIT - OPTION (Q) WIRING



NOTES:

- ISOLATED PINS ARE MARKED WITH A BOLD DOT
- ISOLATED PINS NUMBERS UNDER THE SIDE HEADING

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