

**DATA RATE  
SWITCH SETTINGS  
FOR DIGITAL GROUP  
MULTIPLEXERS (DGM)**

**MOS: CMF 29 &  
CMF 31**

Approved for public release; distribution is unlimited

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Support Centers (TSCs)

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# TRI-TAC ASSEMBLAGES

The DGM equipment (includes quantity of each) used in the TRI-TAC assemblages is shown in the following chart.

|                  |         | AN/TRC-138A | AN/TRC-113 | AN/TRC-174 | AN/TRC-175 | V1-12-V3 | AN/TSQ-170 | AN/TSQ-111 | AN/TTC-38A | AN/TSQ-42 | V1-12 S-280 | AN/TSQ-146 | S-250 | AN/TTC-30 | AN/TTC-31 |
|------------------|---------|-------------|------------|------------|------------|----------|------------|------------|------------|-----------|-------------|------------|-------|-----------|-----------|
| C-10716/TRC      | OCU-I   |             | 1          | 1          |            |          |            |            | 1          | 1         |             |            |       |           |           |
| C-10717/TRC      | OCU-II  | 1           |            | 1          |            |          | 1          |            |            |           |             |            |       |           |           |
| C-11643/TRC      | OCU-III |             |            |            |            |          |            |            |            |           |             |            |       |           | 1         |
| ID-2324(V)1 /TRC | ASI     |             | 1          |            |            |          |            |            |            |           |             |            |       |           |           |
| ID-2324(V)2 /TRC | ASI     |             |            | 1          |            |          |            |            |            |           |             |            |       |           |           |
| ID-2324(V)3 /TRC | ASI     |             |            |            | 1          |          |            |            |            |           |             |            |       |           |           |
| ID-2324(V)4 /TRC | ASI     | 1           |            |            |            |          |            |            |            |           |             |            |       |           |           |
| ** MD-1023(P)/G  | LSCDM   |             | 1          | 1          |            | 1        | 6          | 2          | 1          | 2         | 2           |            |       |           |           |
| MD-1024/G        | HSCDM   | 1           |            |            | 2          |          |            |            |            |           |             |            |       |           |           |
| MD-1025/G        | RLGM/CD |             | 1          |            |            |          |            |            |            |           |             |            |       |           |           |
| MD-1026(P)/G     | GM      | 3           | 2          | 1          | 4          | 1        |            |            |            | 5         | 4           | 1          | 1     |           |           |
| MD-1065/G        | RM      |             | 1          | 1          |            |          |            |            |            |           |             |            |       |           |           |
| * TD-1233(P)/TTC | RLGM    |             |            |            |            |          |            |            |            |           |             |            |       |           |           |
| TD-1234(P)/TTC   | RMC     |             | 4          |            |            |          |            |            |            |           |             |            |       |           |           |
| TD-1235(P)/TTC   | LGM     |             |            |            |            | 2        |            |            |            |           | 6           | 1          | 1     |           |           |
| TD-1236/G        | TGM     |             | 2          |            |            | 1        |            |            |            | 4         | 3           |            |       |           |           |
| TD-1237(P)/G     | MGM     | 1           |            |            | 2          |          |            |            |            |           |             |            |       |           |           |
| AN/GRC-103(V4)   | RADIO   |             | 2          | 3          |            |          |            |            |            |           |             |            |       |           |           |
| AN/GRC-222       | RADIO   | 3           |            | 2          |            |          |            |            |            |           |             |            |       |           |           |

\* The RLGM (field-exposed) interfaces with RMC or RLGM/CD equipments.

\*\* Optional in AN/TRC-170.

# DGM UNITS

|                        |                                      |         |                 |
|------------------------|--------------------------------------|---------|-----------------|
| CABLE DRIVER MODEMS:   | LOW SPEED                            | LSCDM   | MD-1023(P)/G    |
|                        | HIGH SPEED                           | HSCDM   | MD-1024/G       |
|                        | REMOTE LOOP GROUP                    | RLGM/CD | MD-1025/G       |
| GROUP MODEMS:          | GROUP MODEM                          | GM      | MD-1026(P)/G    |
|                        | RADIO MODEM                          | RM      | MD-1065/G       |
| MULTIPLEXERS:          | REMOTE LOOP GROUP                    | RLGM    | TD-1233(P)/TTC  |
|                        | REMOTE COMBINER                      | RMC     | TD-1234(P)/TTC  |
|                        | LOOP GROUP                           | LGM     | TD-1235(P)/TTC  |
|                        | TRUNK GROUP                          | TGM     | TD-1236/G       |
| CONTROL ORDERWIRE:     | MASTER GROUP                         | MGM     | TD-1237(P)/G    |
|                        | ORDERWIRE CONTROL UNIT               | OCU-I   | C-10716/TRC     |
|                        | ORDERWIRE CONTROL UNIT               | OCU-II  | C-10717/TRC     |
| INDICATORS:            | ORDERWIRE CONTROL UNIT               | OCU-III | C-11643/TRC     |
|                        | ALARM STATUS INDICATOR (AN/TRC-173)  | ASI     | ID-2324(V)1/TRC |
|                        | ALARM STATUS INDICATOR (AN/TRC-174)  | ASI     | ID-2324(V)2/TRC |
|                        | ALARM STATUS INDICATOR (AN/TRC-175)  | ASI     | ID-2324(V)3/TRC |
| RESTORERS, PULSE FORM: | ALARM STATUS INDICATOR (AN/TRC-138A) | ASI     | ID-2324(V)4/TRC |
|                        | LOW SPEED PULSE RESTORER             | LSPR    | TD-1218/G       |
| TEST SET, TELEPHONE    | HIGH SPEED PULSE RESTORER            | HSPR    | TD-1219/G       |
|                        | CABLE ORDERWIRE UNIT                 | COU     | TS-3647/G       |

**THUMBWHEEL POSITION**

**BIT RATE Kb/s**

GM GROUP RATES  
 DIPHASE 0 THRU 14  
 DIPULSE 0, 5, 7, 9, 12  
 BIPOLEAR 0, 15

0 OFF  
 1 72  
 2 128  
 3 144  
 4 256  
 5 288  
 6 512  
 7 576  
 8 1024  
 9 1152  
 10 1536  
 11 2048  
 12 2304  
 13 4096  
 14 4608  
 15 4915.2  
 16 9360  
 17 18720

RM GROUP RATES  
 0, 2 THRU 9  
 Radio Side 640 KHz OR 1280 KHz  
 LGM GROUP RATES  
 2 THRU 7

TGM GROUP RATES  
 0 THRU 9, 11, 12

TGM SUPER GROUP RATES  
 2 THRU 14

MGM GROUP RATES  
 0 THRU 15

MGM MASTER GROUP RATES  
 16, 17

RMC HIGH GROUP RATES  
 2 THRU 7

RLGM/CD GROUP RATES  
 OFF, 0, 1, 3

LSCDM GROUP RATES  
 1 THRU 11

Cable Rate --- 2304 Kb/s

HSCDM GROUP RATES  
 13, 14, 16, 17

Cable Rate --- 19.2mbs

**TGM FRAMING FORMATS**

| SWITCH POSITION | FRAME FORMAT | GROUP RATIO  |
|-----------------|--------------|--------------|
| 0               | C            | 4: 2: 1: 1:  |
| 1               | B            | 2: 1: 1:     |
| 2               | A3           | 1: 1: 1: 1:  |
| 3               | A1           | 1: 1:        |
| 4               | A2           | 1: 1: 1:     |
| 5               | D1           | 4 RLGM       |
| 6               | D2           | 2 RLGM       |
| 7               | SG           | SINGLE GROUP |

- NOTE 1. CANNOT CONNECT SG-1139 TO GP1 OF TGM. MUST BE IN GP 2, 3, OR 4 AND TGM GP1 MUST BE LOOPED BACK.  
 2. SINGLE ENCRYPTED GROUP MUST BE IN GP1.

**OCU RING CODE CHART**

| Digital Ring Code | Setting Data |     |     |     |     |     |     |    |     |     |     |     |     |     |     |     |
|-------------------|--------------|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|
|                   | 1            | 2   | 3   | 4   | 5   | 6   | 7   | 8  | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  |
| 1                 | OFF          | OFF | OFF | OFF | OFF | OFF | OFF | ON | ON  | ON  | ON  | ON  | OFF | ON  | ON  | ON  |
| 2                 | OFF          | OFF | OFF | OFF | OFF | OFF | ON  | ON | ON  | OFF | ON  | ON  | ON  | OFF | ON  | ON  |
| 3                 | OFF          | OFF | OFF | OFF | OFF | OFF | ON  | ON | ON  | ON  | OFF | OFF | ON  | ON  | OFF | ON  |
| 4                 | OFF          | OFF | ON  | OFF | ON  | ON  | ON  | ON | OFF | OFF | OFF | OFF | ON  | ON  | ON  | OFF |
| 5                 | OFF          | ON  | OFF | OFF | ON  | ON  | ON  | ON | OFF | OFF | OFF | OFF | ON  | ON  | ON  | ON  |
| 6                 | ON           | OFF | OFF | OFF | ON  | ON  | ON  | ON | OFF | OFF | OFF | OFF | ON  | ON  | ON  | ON  |

**576 Kb/s FAMILY GROUP RATE**

| Input Bit Rates (Kb/s) |             |             |             | Output Bit Rate (kb/s) | Frame Format Switch |
|------------------------|-------------|-------------|-------------|------------------------|---------------------|
| Input No. 1            | Input No. 2 | Input No. 3 | Input No. 4 |                        |                     |
| 2304 (1)               | 2304        | 0           | 0           | 4608                   | 3 (A1)              |
| 2304 (1)               | 1152        | 1152        | 0           | 4608                   | 1 (B)               |
| 3404 (1)               | 288-1152    | 0, 288-576  | 0, 288-576  | 4608                   | 0 (C)               |
| 1152 (1)               | 1152        | 288-1152    | 0, 288-1152 | 4608                   | 2 (A3)              |
| 1152 (1)               | 576         | 576         | 288-576     | 4608                   | 2 (A3)              |
| 1152                   | 1152        | 0           | 0           | 2304                   | 3 (A1)              |
| 1152                   | 576         | 576         | 0           | 2304                   | 1 (B)               |
| 1152                   | 144-576     | 0, 144, 288 | 0, 144, 288 | 2304                   | 0 (C)               |
| 576                    | 576         | 144-576     | 0, 144, 576 | 2304                   | 2 (A3)              |
| 576                    | 288         | 288         | 144, 288    | 2304                   | 2 (A3)              |
| 576                    | 576         | 0           | 0           | 1152                   | 3 (A1)              |
| 576                    | 288         | 288         | 0           | 1152                   | 1 (B)               |
| 576                    | 144, 288    | 0,144       | 0, 144      | 1152                   | 0 (C)               |
| 288                    | 288         | 144, 288    | 0, 144, 288 | 1152                   | 2 (A3)              |
| 288                    | 144         | 144         | 144         | 1152                   | 2 (A3)              |
| 576                    | 0           | 0           | 0           | 576                    | 7 (SG)              |
| 288                    | 288         | 0           | 0           | 576                    | 3 (A1)              |
| 288                    | 144         | 0,144       | 0           | 576                    | 1 (B)               |
| 144 (2)                | 144         | 144         | 0, 144      | 576                    | 2 (A3)              |
| 288                    | 0           | 0           | 0           | 288                    | 7 (SG)              |
| 144 (2)                | 144         | 0           | 0           | 288                    | 3 (A1)              |
| 144 (2)                | 0           | 0           | 0           | 144                    | 7 (SG)              |

NOTES: (1) This line restricted to 32 Kb/s channel rate.

(2) This line restricted to 16 Kb/s channel rate.

**TGM/RLGM OPERATION**

| Input Bit Rates (Kb/s) |             |             |             | Output Bit Rate (Kb/s) | Frame Format Switch |
|------------------------|-------------|-------------|-------------|------------------------|---------------------|
| Input No. 1            | Input No. 2 | Input No. 3 | Input No. 4 |                        |                     |
| 144                    | ----        | ----        | ----        | 288 (9 ch)             | 6 (D2)              |
| 144                    | 144         | ----        | ----        | 288 (9 ch)             | 6 (D2)              |
| 144                    | 144         | 144         | ----        | 576 (18 ch)            | 5 (D1)              |
| 144                    | 144         | 144         | 144         | 576 (18 ch)            | 5 (D1)              |

NOTES: Bit rates reduced by a factor of two when loop rate is reduced is reduced to 16 Kbs.