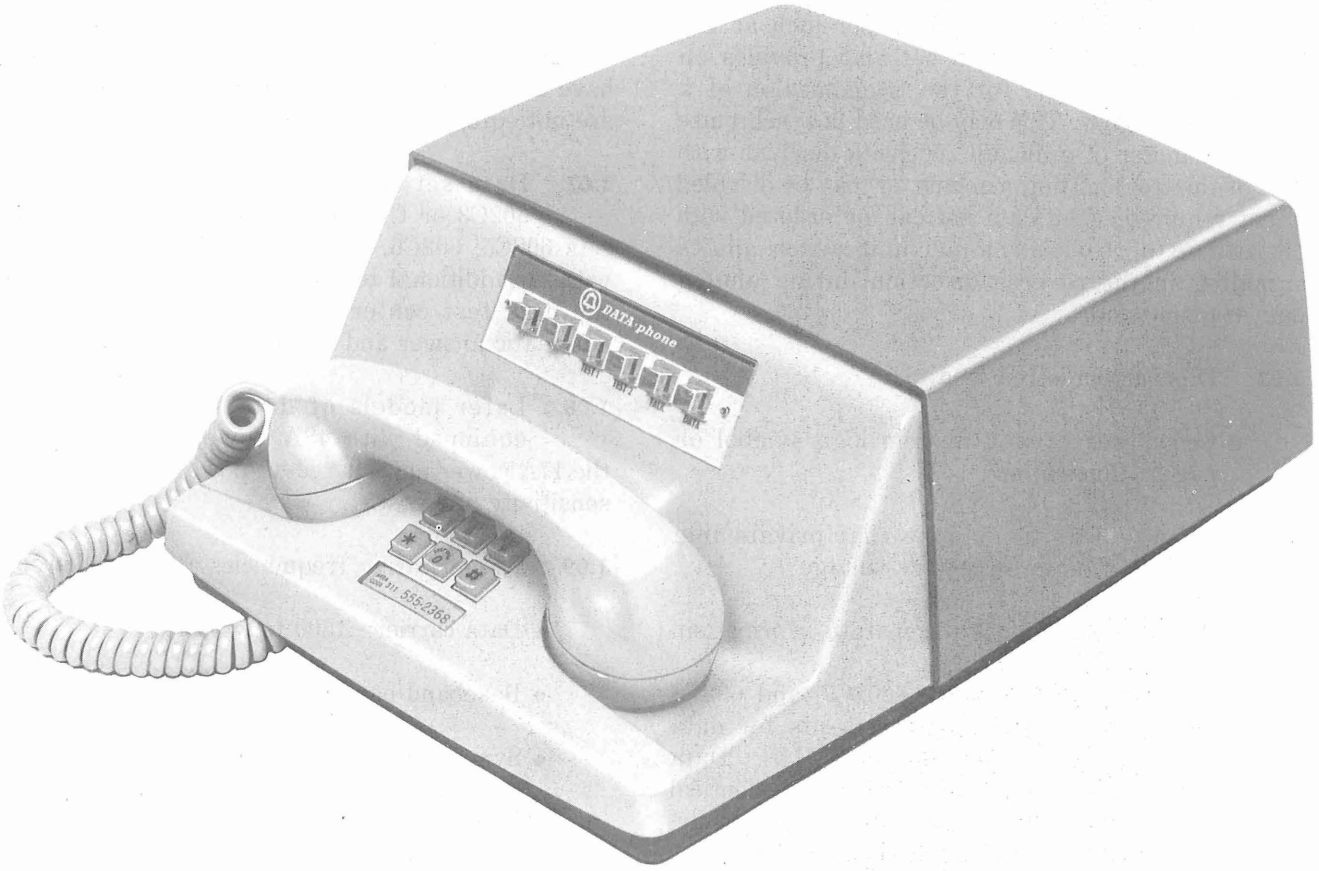
DATA SET 602C-TYPE
REFERENCE GUIDE



Data Set 602C-Type (Available Also With Rotary Dial)

CONTENTS

1. GENERAL

1.01 The data set 602C-type is a complete transceiver which transmits facsimile signals or other similar analog data signals over the switched telephone network or 2-wire private lines if battery voltage is available (wet). The response of the analog channel interface is approximately 0 to 1000 Hz, which corresponds to facsimile transmission with resolution of up to 96 lines per inch at 180 lines per minute. The data set also provides an optional sync channel for the transmission of a stable 60-Hz signal. This may be used to synchronize the drive motor of a distant receiving machine with that of the transmitting machine, or may be disabled if not required. The data set can be ordered with or without a reverse-channel unit which allows signaling in the reverse direction during analog data transmission.

1.02 This section is reissued to:

- Show present Bell System logo symbol on page 1 illustration
- Change 1.01 to indicate that private line operation requires battery voltage
- Add lines in Table A to separate information.

1.03 Data sets 602C5, 602C6, 602C7, and 602C8 have been coded as replacements for data sets rated manufacture discontinued (MD). Data sets 602C5, 602C6, 602C7, and 602C8 are identical to the 602C1, 602C2, 602C3, and 602C4, respectively, with the exception that the later models have 3A2 data units instead of 3A1 data units. The 3A2 data unit is similar to the 3A1 data unit but it also provides compatibility for the data sets with ESS offices and Unigauge lines.

1.04 Data sets 602C2 series 9 and above, 602C4 series 6 and above, 602C6 series 3 and above, and 602C8 series 3 and above have a 1A2 reverse-channel data unit instead of a 1A1 reverse-channel unit. The 1A2 data unit is similar to the 1A1 data unit, but its output signal level is made continuously variable by a potentiometer instead of the three different output selections on the 1A1 data unit. This allows compliance with the signal level requirements of tariff F.C.C. 263.

1.05 Data sets 602C1 or 602C2 series 6 and above, 602C3 or 602C4 series 3 and above, and all data sets 602C5, 602C6, 602C7, and 602C8 have modified transmitter power output options to meet the requirements of F.C.C. 263. The new options are V (−3 dBm), T (−6 dBm), X (−9 dBm), and W (−12 dBm).

1.06 Data sets 602C5 and 602C6 use the rotary dial; data sets 602C7 and 602C8 utilize Touch-Tone® dialing. Data sets 602C6 and 602C8 have a reverse channel; data sets 602C5 and 602C7 are not equipped with a reverse channel.

1.07 Data set 602C1 or C2 series 4, data set 602C3 or C4 series 1, and all series of data sets 602C5, 602C6, 602C7, and 602C8 are equipped with an additional test key. This test key enables the data test center (DTC) to remotely test the automatic answer and reverse-channel features.

1.08 Later models of data set 602C-type are equipped with 48A power units replacing the 17A power units to reduce power input frequency sensitivity and cost.

1.09 The operating frequencies are as follows:

- Data carrier: 1500 to 2450 Hz
- Baseband bandwidth: 1000-Hz
- Sync: 550 to 660 Hz
- Reverse-channel signal: 387 Hz
- Answer-tone signal: 2025 Hz.

2. PHYSICAL AND ELECTRICAL CHARACTERISTICS

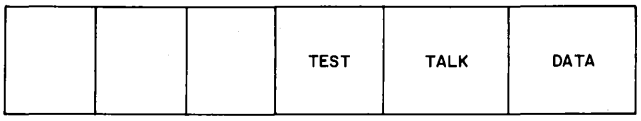
2.01 Data set 602C-type requires 117-volt ac 60-Hz power supplied by the customer through a common 3-wire receptacle. The data set is 10-1/2 inches wide, 14 inches deep, and 5-1/2 inches high, and is enclosed in a 2-tone gray integrated housing. It weighs 16 pounds.

2.02 The connection between the business machine and the data set is a 25-conductor cord and plug provided by the customer.

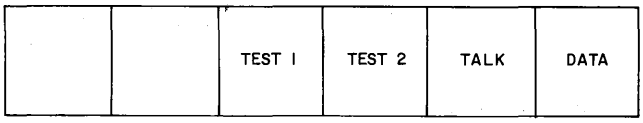
2.03 The interface leads presented by the data set to the facsimile installation conform to the Electronic Industries Association (EIA) standards wherever possible.

3. OPERATION

3.01 Earlier models of data set 602 such as C1, and C2 series 1, 2, and 3 are equipped with six pushbuttons shown as follows:



Later models of data set 602 such as C1, C2 series 4, C3, C4 series 1, and C5, C6, C7, and C8 all have an additional remote test capability shown as follows:



3.02 To originate a data call:

(a) Depress the TALK key (locking) and establish connection with the distant terminal in the normal telephone manner.

(b) After the distant terminal has answered:

(1) ***Manually:*** When verbal agreement is reached to transmit data, depress the DATA key (nonlocking).

(2) ***Automatically:*** There is a 1.1-second quiet interval after connection is established with the distant terminal. At the end of this period, a 2025-Hz tone will be heard for about 3.5 seconds. At the end of this period, depress and release DATA key.

(c) Releasing the DATA key restores the TALK key to normal. The DATA lamp will light about 5 seconds after this key is released. The set is now in the data mode and transmission can begin. The handset can be placed on its cradle.

3.03 To terminate a call, depress the TALK key, lift the handset, then hang up.

3.04 The data set may be conditioned to answer incoming calls either manually or automatically.

(a) ***Manually:*** Call is answered in normal manner. When verbal agreement is reached, or when data transmission is to begin, depress and release the DATA key. Release of the DATA key restores the TALK key. The DATA lamp lights about 5 seconds after the release of the DATA key. The set is now in the data mode and transmission can begin. Handset may be placed on its cradle.

(b) ***Automatically:*** Sets conditioned for automatic answer require no operation by the attendant.

3.05 ***Test Mode:*** The data set is equipped with circuitry that enables a DTC to remotely test the data set. The attendant will be instructed by the DTC to depress the test key(s) when a remote test of the data set is to be made. On completion of remote tests, the data set will be released by the DTC. The data set may or may not be ready for normal service, depending on results of test.

4. SERVICE ORDER INFORMATION

4.01 Refer to the section entitled Reference Guide—Description of Data Set Features and Options (590-000-101) for a more detailed explanation of features and options common to most data sets. Service offerings and substitute data sets are outlined in Table A. Customer options are given in Table B. The ITEM column in Table A provides a reference to descriptive information contained in Section 590-000-101.

4.02 The following paragraphs provide detailed information on customer options.

(a) ***DECISION A—With or Without Automatic Answering:***

1. With Automatic Answering (Option Y): This option causes the data set to respond to ringing by automatically answering and placing itself in the data mode. With this option, all

TABLE A

SERVICE OFFERINGS – CURRENT AND SUBSTITUTE MODELS

USOC	FEATURE	USABLE SETS	ITEM	REMARKS
DEA	Rotary Dial w/o Reverse Channel	602C5 602A 602A1 602C2 602C1 602C6		Current Standard Note 1 Note 2 Notes 3 & 4 Note 4 Note 3
DVC	Rotary Dial w/ Reverse Channel	602C6 602C2	A3	Current Standard Note 4
DEC	Touch-Tone Dial w/o Reverse Channel	602C7 602C3 602C4 602C8		Current Standard Note 4 Notes 3 & 4 Note 3
DVL	Touch-Tone w/ Reverse Channel	602C8 602C4	A3	Current Standard Note 4

Note 1: If Sync Channel, Pre- and Post-emphasis are desired IN. (Substitution not recommended).

Note 2: If Pre- and Post-emphasis options are desired IN. (Sync Channel is optional).

Note 3: Reverse Channel is not used.

Note 4: Not compatible with ESS offices and Unigauge Lines.

TABLE B

CUSTOMER OPTION DECISION TABLE

DECISION	OPTION	DESIG-NATION	ITEM
A	1. With automatic answer 2. Without automatic answer	Y*	B3
B	3. With automatic calling unit 4. Without automatic calling unit	M	B1
C	5. With sync channel 6. Without sync channel	ZC* ZD	
D	7. With pre-emphasis 8. Without pre-emphasis	ZA*	
E	9. With post-emphasis 10. Without post-emphasis	ZB*	

* Factory-supplied option

calls are automatically answered. No provisions are made for key-controlled automatic answering.

2. Without Automatic Answering (Remove Option Y): This option disables the control circuit within the data set that allows automatic answering. All calls must be manually answered by an attendant.

3. With ACU (Option M): This option is specified when an 801A or 801C ACU is used with the 602C. The SPARE 1 key is unblocked and redesignated DIAL TONE key if the 801 is arranged for use with ground start central office lines. The DIAL TONE key provides a means to signal the central office for dial tone when the ACU is disabled.

4. Without ACU: No option is required if an ACU is not used. The 602C is factory equipped to operate without an ACU.

(c) ***DECISION C—With or Without Sync Channel:***

5. With Sync Channel (Option ZC): This option provides a sync channel which allows transmission of 60-Hz synchronizing signals simultaneously with the data to synchronize the receiving business machine with the transmitting business machine.

6. Without Sync Channel (Option ZD): This option provides a means to remove the sync channel entirely where it is not required. Removal of the sync channel filters reduces some delay distortion at the upper end of the baseband. This option is desirable for business machines that do not require a sync signal.

(d) ***DECISION D—Pre-emphasis IN or OUT:***

7. Pre-emphasis IN (Option ZA): This option provides high frequency peaking of the transmitted data signal. It is used in conjunction with post-emphasis (option ZB) to produce an overall slightly peaked response. Both options should be specified for facsimile services.

8. Pre-emphasis OUT: This option is desirable for slow scan video application because a flat baseband characteristic is produced. Both options ZA and ZB should be removed.

(e) ***DECISION E—Post-emphasis IN or OUT:***

9. Post-emphasis IN (Option ZB): This option partially removes the high frequency peaking introduced by pre-emphasis (option ZA) to produce an overall slightly peaked response desirable for facsimile services.

10. Post-emphasis OUT: This is the same as decision (d) 8.

Additional Engineering Information

4.03 When providing service for customers using the Stewart-Warner type FTR 240 DP facsimile equipment, the following requirements must be met:

(1) Automatic-answer feature is normally used.

(2) Equalization is provided by the business machine and is not required by the data set.

(3) The sync channel is not used.

(4) Post-emphasis must be provided (pre-emphasis not provided).

4.04 ***Telco Options:*** Telephone company options are listed in Table C. The ITEM column provides a reference to descriptive information provided in Section 590-000-101.

5. COMPATIBLE DATA SETS

5.01 The data set models listed in Table A may be used to supply the services described in this section. The customer and Telco options listed above do not necessarily apply for all models listed in Table A.

TABLE C

TELCO OPTIONS

OPTION			DESIGNATION	ITEM
Terminal Impedance	600 ohms 900 ohms		N Q*	C1
Output Level	−3dBm† −6dBm† −9dBm† −12dBm†	0dBm −3dBm −6dBm −9dBm	V T X* W	C2
Reverse Channel Output‡	−3dBm −6dBm −9dBm		ZG ZH* ZJ	C3
Receiver Pad	No 6 dB 12 dB		E* F G	C9
Equalizer IN Equalizer OUT			J H	C6 & C7

* Factory-supplied option

‡ Reverse channel outputs are continuously variable in the following type data sets:

(1) 602C2 series 9 and above
(2) 602C4 series 6 and above
(3) 602C6 series 3 and above
(4) 602C8 series 3 and above

† Modified power output options available in the following type data sets:

(1) 602C1 series 6 and above
602C2 series 6 and above
(2) 602C3 series 3 and above
602C4 series 3 and above
(3) All 602C5, 602C6, 602C7, and 602C8

6. REFERENCES

6.01 The following drawings, specifications, and sections provide additional information on data set 602C-type and associated equipment:

(a) Schematic Diagram—SD-1D081-01

(b) Circuit Description—CD-1D081-01

(c) PEL 7520.

(d) BSPs—596-016 series for data sets 602C-type; 596-011 series for data sets 602A-type.