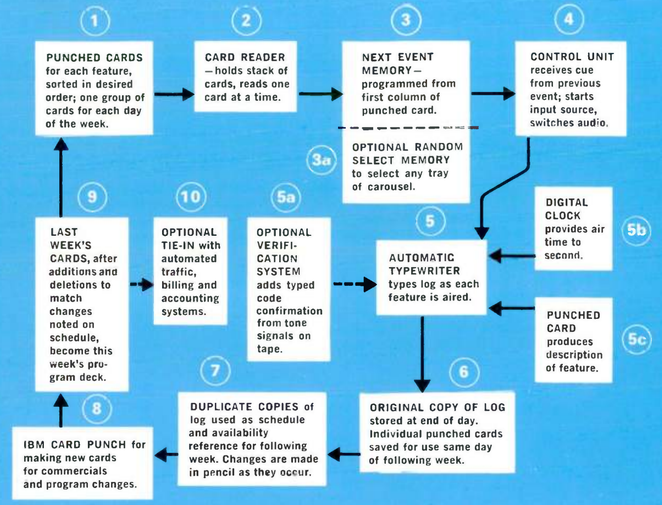
SIMPLIFIED DIAGRAM OF IGM 600 SYSTEM



Traffic and accounting tie-in

One copy of the log is typically used as a schedule for traffic purposes. Changes in the format can be noted in pencil on the schedule for next week. Commercials which expire are crossed off and new commercials added at their appropriate times.

Operation of Series 600 system is simplified by the use of an IBM printing card punch, as shown here. This unit punches the cards, prints a description of the punched information on the top of the card, and has built-in duplicating and "program card" capabilities. Units are available from IBM on a lease or purchase basis. Schools to train operators and complete IBM service on the equipment are generally available on a local basis.

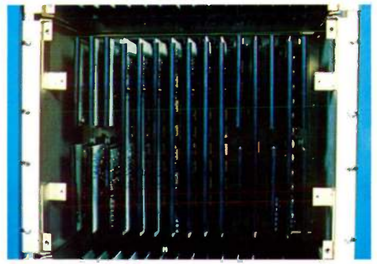
New cards are manually or automatically sorted into the previous week's deck of cards for the same day, so that changes correspond to the revised schedule. This is a simple matter, even on a manual basis, as the cards remain in the same order as the entries on the schedule, and only those cards which change need be considered. The corrected, current schedule is used to load the tape equipment, the cards are placed in the NCR card reader, and a new day's automatic programming is ready to start.

If automatic accounting equipment such as the IBM Model 402 is used, the portion of the commercial cards not used for printing the log can be used for traffic and accounting data. Contract starting date, end date, scheduled time, salesman, agency, product codes, and rate can all be shown. Using automatic sorting equipment, avail-

ability schedules, invoices, sales reports, and accounts receivable ledgers can be produced on the IBM printer with the same cards that operate the automation system. Commercial cards can be quickly sorted back into the cards representing other features by punching all cards with a scheduled time, then sorting into chronological order.

If program logs are presently being prepared from punched cards, all that converting to the IGM 600 automated control system requires is that the appropriate column or columns of the card and log form be reserved for channel source and verification codes.

Advanced engineering of the IGM 600 control system



The IGM 600 Series equipment is the most advanced system available in terms of design and concept. Design incorporates the latest solid state devices for maximum reliability.

The interface unit, shown above, makes extensive use of integrated circuits mounted on printed, plug-in circuit boards to form highly compact and reliable modules. These perform all logic, memory and control functions, including monitoring, cueing, silent sensing, sense amplifying, electronic timekeeping and interfacing between components.

Standardized, plug-in circuit boards, shown below, are utilized in the control unit. They are easily removable, completely interchangeable and permit ready expandability of the system.

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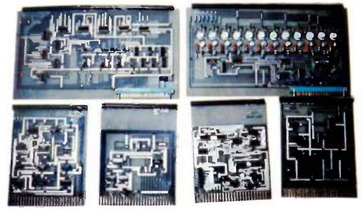

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IGM INTERNATIONAL GOOD MUSIC, Inc.
P.O. Box 943, Bellingham, Wash. 98225 Tel. (206) 733-4567

Sales and technical service representatives in principal cities

PRINTED IN U.S.A. 5M 1/68

Top photo shows IGM 600 control system with card reader and typewriter rack-mounted. Inset shows optional remote positioning of card reader and typewriter in separate desk console.

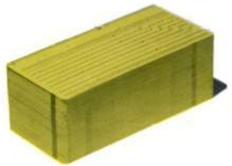
IGM

Series 600 audio control systems

- **UNLIMITED FLEXIBILITY** in programming any format, an entire day at a time. Random access to all sources permits changes at will.
- **SIMPLE TO OPERATE** with relatively unskilled personnel, freeing expensive talent for more productive work.
- **ABSOLUTE CONTROL** at all times. You run the system the way you want, without compromises in your established format.
- **PRODUCES AN ACCURATE, VERIFIED FCC LOG,** automatically typed as each feature is aired. Log incorporates last minute changes.
- **EQUALLY EFFECTIVE** for full automated operation, live announcer and records, live announcer with taped music, or any combination desired.
- **ADVANCED, MODULAR DESIGN,** permitting expansion at any time. All solid state, with extensive use of monolithic integrated circuits on plug-in cards.
- **OPTIONAL INTEGRATION** with punch card accounting or computer installations.

How the IGM Series 600 audio control system works

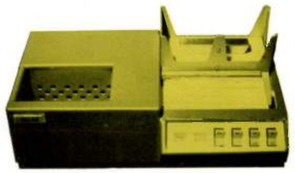
THE SERIES 600 puts your chosen sound on the air, exactly as you want it—consistently, free from error, open to changes or any degree of live participation at will. It permits 24-hour variety and diversity of programming, combined with the greatest simplicity of operation of any system of automated control. The result is unlimited freedom to automate your own individual format, with maximum reliability and ease of control.



A card for each event—a "deck" of cards for each day of the week

Punched cards are used to program the IGM 600 system and to provide the automatic log. There is one card for each feature in the format, including spots, programs, time checks, music selections and DJ intros. The source of the feature is indicated by the letter in the first column.

Program format is set up by organizing the cards in the desired order, either manually or automatically. A separate group of cards is normally made for each day of the week. There is no need to set up an established format and repeat it every half hour or hour. The most complex format can be handled without compromise as the system is completely random access. Yet changes are made as simply as removing a card or substituting one for another.



Cards actuate the system

The cards are loaded in the hopper of an NCR card reader, a standard data processing unit of high reliability, widely used as an auxiliary reader to feed telephone lines and computers.

Cards are automatically fed, one at a time, to the "read" station, and dropped in the hopper at the left when used. The controls on the front permit manual operation. The order of the cards in the hopper may be changed, or a new card inserted, at any time up to air time without affecting the program log.

Visual readout of "next event" and time

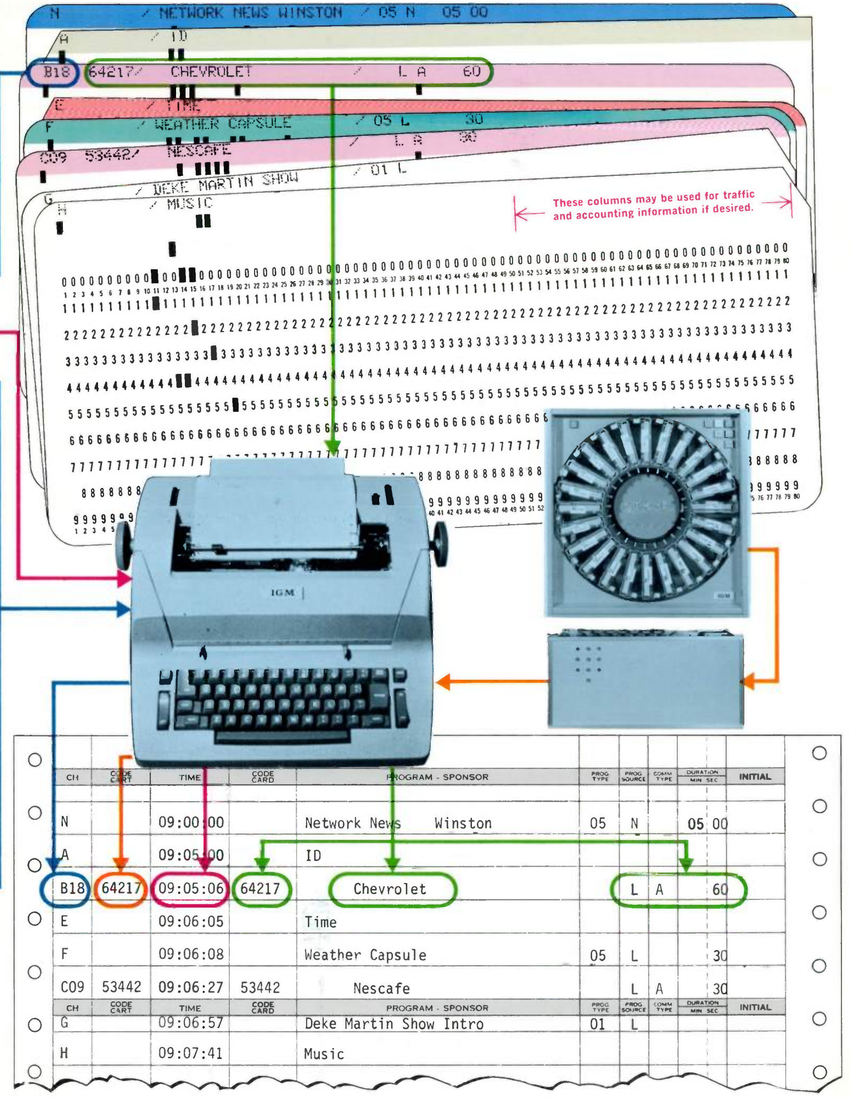
As the card enters the "read" station of the NCR, the information punched into columns #1, 2, and 3 is displayed visually as shown below, and memorized. The "B" indicates that source "B" will be used. If optional "random select" is used, the tray number of the 24-cartridge carousel is also displayed. The proper tray of the carousel is searched as soon as the card enters the "read" station. At the switching cue, the next event memory causes the control unit to start the proper channel, and feeds the typewriter with both the code designation of the source being used and the exact switching time.

Audio switching

In the control unit illustrated below, each lettered button indicates a module which controls an individual input. This can be a reel-to-reel transport, cartridge playback unit, carousel, live announcer, microphone, output of a console, remote line, network feed, or any other input. A single cable which plugs into the module carries both controls and audio. Inputs can be moved from channel to channel by changing plugs. All channels are identical.

The top drawer contains mixing and monitoring circuits, including VU meters and a speaker which can be switched from the program line to the cue bus so that any source can be auditioned. A built in fail-safe alarm warns the operator of a lack of audio and switches the system to the next event after a minimum delay of 3 seconds.

Overall control over the system is provided by the three buttons in the bottom drawer for "master start," "step," and "master stop." These are also remoted to a control studio. The channel designation buttons light up to show which source is being used and can be pushed to put a source on the air manually. The unit is modular, permitting expansion on a plug-in basis. All components are mounted on plug-in printed circuit boards and the entire unit is solid state.



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A		09:05:00		ID						
B18	64217	09:05:06	64217	Chevrolet		L	A		60	
E		09:06:05		Time						
F		09:06:08		Weather Capsule	05	L			30	
C09	53442	09:06:27	53442	Nescafe		L	A		30	
CH	CODE CART	TIME	CODE CARD	PROGRAM - SPONSOR	PROG TYPE	PROG SOURCE	COMM TYPE	DURATION MIN	DURATION SEC	INITIAL
G		09:06:57		Deke Martin Show Intro	01	L				
H		09:07:41		Music						

Automatic logging

The standard IBM "input-output" automatic typewriter used in the IGM 600 system operates at 15½ characters per second. Thus, the entry for the "network news" shown on the sample log, containing 47 characters, would take about 3 seconds to type. A special "skip" code punched into the network news card tells the typewriter when to stop typing from the card and skips the card out of the reader. In the second card no information is desired on the log after the description "ID". Since there are only 15 characters to be logged, the card will "skip" in less than two seconds. The maximum time to type the most complex log entry is 7 seconds. The minimum time is about 2 seconds. The typewriter can be operated manually to log manually programmed features. A writing line of either 7½" or 13" is available.

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If this option is used, a special five-digit code is recorded on the cue track of the cartridge as the commercial or feature is recorded. A special IGM encoder generates standard telephone company "touch-tone" bursts which are recorded at the beginning of the cartridge. As the cartridge is switched on the air, these tones are fed to a decoder where they are converted to digits and fed to the typewriter. They appear in column #2 of the log for those features which have been encoded. Decoding and typing takes about 2½ seconds. Note that the same code, as previously punched into the card, is typed in column #4 of the log. Verification then consists of comparing the two codes to insure that the proper cartridge was loaded, selected and aired.

Log form

The layout and number of duplicate copies of the log desired are custom designed for each station and printed in continuous fan-fold form. A cover sheet or extra margin can be used to provide space for a key to codes used, date, a place for the announcer on duty to sign on or other information. After the day's log is completed, the original is verified and stored. Duplicate log copies are useful as a schedule for next week, availability schedule and for other purposes. The day's "deck" of punched cards is also saved for future use.

Keeping the system on time:

The IGM 600 system eliminates the labor of timing the entire format in advance to insure that station IDs are within legal limits, that commercials are broadcast at scheduled times, or that fixed programs are joined at the proper time. Instead, the system automatically adjusts to

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The anticipated length of a given period is easy to estimate by referring to the log for last week and considering changes. The switches shown on the panel select those inputs which will be skipped by the control unit at the appropriate time. "Skip" times are generally fixed within the hour, and throughout the day. If the format requires, circuitry can be added to provide correction to real time at different intervals throughout the day. Real time switchers and faders can be added to the system, as required, for switching where some features must start at exact times.

Use with live DJ's

If you are looking for a system which will relieve your announcers and studio engineers of routine switching and logging duties, yet does not require complete automation of music and especially DJ introductions, the IGM 600 Series equipment is it.

Only those features which you presently pre-record need be loaded into the system. The DJ can continue to operate from a console with turntables and microphone.

The output of the console is fed to the IGM 600 system as a regular input—"J" for example. The "next event" readout, showing the next source to be used, is remoted to the DJ's studio as is the remote control for the system. Daily schedules are prepared in the normal manner. When a recorded feature is scheduled, the DJ presses a single button which switches the audio, starts the input containing the feature, and completely logs the entry. At the completion of the recorded feature, switching to the next event, or back to the "J", is automatic. Records and talk are programmed live until the next recorded event.

As an option, music may also be pre-recorded to any extent desired—on cartridges in the case of a format requiring a limited play list, or on reel-to-reel tapes. With this system, all elements of the format except DJ talk, time checks, weather and news summaries can be searched, switched, and logged automatically. Even non-recorded features can be logged automatically from the studio at the press of a "log" button.

DJ and studio engineering personnel are thus freed from routine detail and allowed to concentrate on productive, revenue producing tasks.

IGM engineers and supplies your complete equipment package, including controls, tape transports, cartridge playbacks and all needed optional or accessory equipment. Installation by IGM factory engineers, plus thorough initial training of station personnel assures undivided responsibility and smooth operation from the start. Continuing technical, maintenance and programming services are available.

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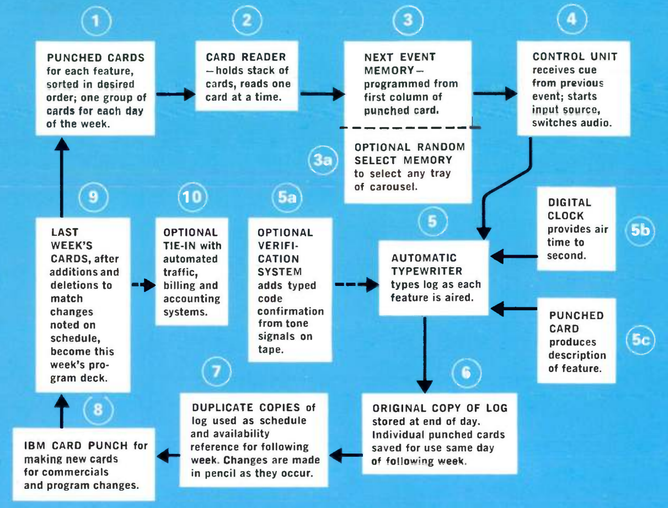

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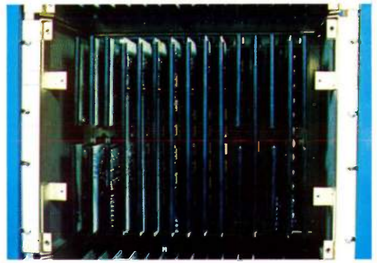

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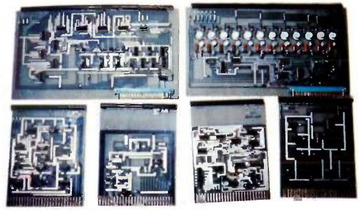

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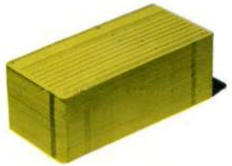

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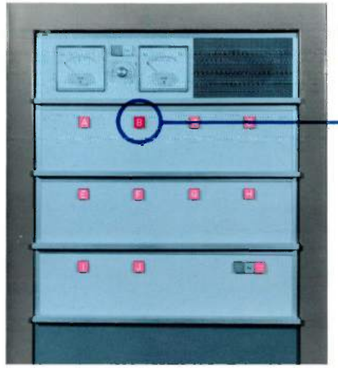

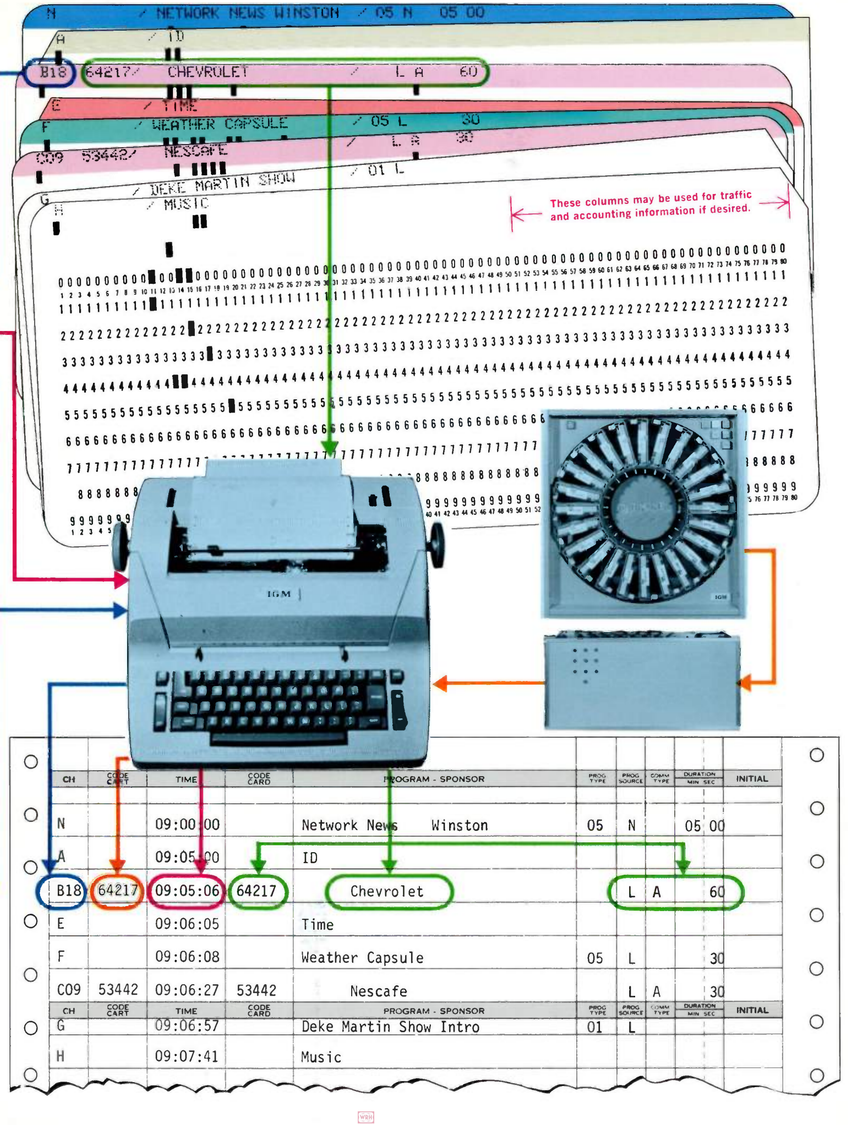

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F		09:06:08		Weather Capsule	05	L		30	
C09	53442	09:06:27	53442	Nescafe		L	A	30	
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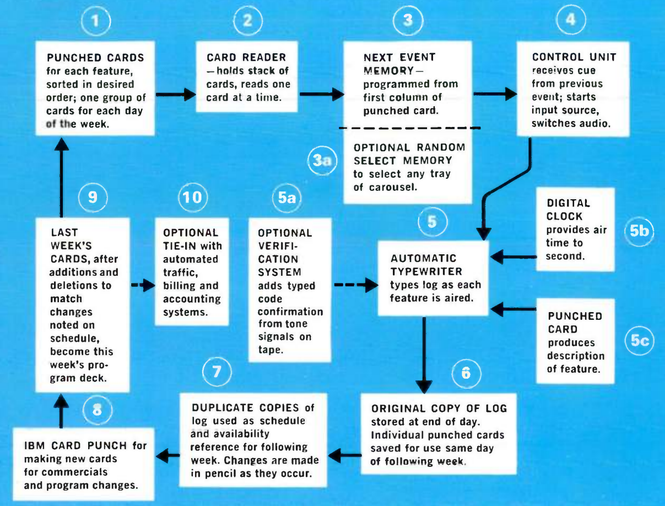
The output of the console is fed to the IGM 600 system as a regular input—"J" for example. The "next event" readout, showing the next source to be used, is remoted to the DJ's studio as is the remote control for the system. Daily schedules are prepared in the normal manner. When a recorded feature is scheduled, the DJ presses a single button which switches the audio, starts the input containing the feature, and completely logs the entry. At the completion of the recorded feature, switching to the next event, or back to the "J", is automatic. Records and talk are programmed live until the next recorded event.

As an option, music may also be pre-recorded to any extent desired—on cartridges in the case of a format requiring a limited play list, or on reel-to-reel tapes. With this system, all elements of the format except DJ talk, time checks, weather and news summaries can be searched, switched, and logged automatically. Even non-recorded features can be logged automatically from the studio at the press of a "log" button.

DJ and studio engineering personnel are thus freed from routine detail and allowed to concentrate on productive, revenue producing tasks.

IGM engineers and supplies your complete equipment package, including controls, tape transports, cartridge playbacks and all needed optional or accessory equipment. Installation by IGM factory engineers, plus thorough initial training of station personnel assures undivided responsibility and smooth operation from the start. Continuing technical, maintenance and programming services are available.

SIMPLIFIED DIAGRAM OF IGM 600 SYSTEM



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Operation of Series 600 system is simplified by the use of an IBM printing card punch, as shown here. This unit punches the cards, prints a description of the punched information on the top of the card, and has built-in duplicating and "program card" capabilities. Units are available from IBM on a lease or purchase basis. Schools to train operators and complete IBM service on the equipment are generally available on a local basis.

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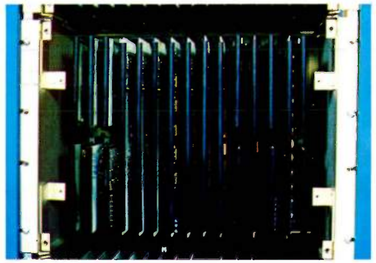
Advanced engineering of the IGM 600 control system



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The interface unit, shown above, makes extensive use of integrated circuits mounted on printed, plug-in circuit boards to form highly compact and reliable modules. These perform all logic, memory and control functions, including monitoring, cueing, silent sensing, sense amplifying, electronic timekeeping and interfacing between components.

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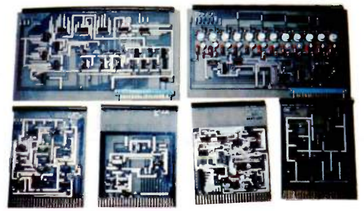

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Systems in use automate the switching of as many as 36 inputs and 14 outputs, with constant monitoring and control from a single console. IGM also produces non-duplication switching systems for cable TV.

IGM TAPED MUSIC SERVICES — the most widely used in radio
The wide range of IGM music services, announced or unannounced, monaural or stereo, is based on over 18,000 hours of original selections chosen with discrimination and expertly classified. IGM is the nation's largest supplier of taped programming for radio.

IGM INTERNATIONAL GOOD MUSIC, Inc.

P.O. Box 943, Bellingham, Wash. 98225 Tel. (206) 733-4567

Sales and technical service representatives in principal cities

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Top photo shows IGM 600 control system with card reader and typewriter rack-mounted. Inset shows optional remote positioning of card reader and typewriter in separate desk console.

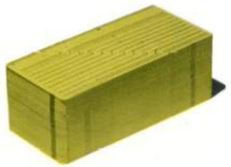
IGM

Series 600 audio control systems

- **UNLIMITED FLEXIBILITY** in programming any format, an entire day at a time. Random access to all sources permits changes at will.
- **SIMPLE TO OPERATE** with relatively unskilled personnel, freeing expensive talent for more productive work.
- **ABSOLUTE CONTROL** at all times. You run the system the way you want, without compromises in your established format.
- **PRODUCES AN ACCURATE, VERIFIED FCC LOG,** automatically typed as each feature is aired. Log incorporates last minute changes.
- **EQUALLY EFFECTIVE** for full automated operation, live announcer and records, live announcer with taped music, or any combination desired.
- **ADVANCED, MODULAR DESIGN,** permitting expansion at any time. All solid state, with extensive use of monolithic integrated circuits on plug-in cards.
- **OPTIONAL INTEGRATION** with punch card accounting or computer installations.

How the IGM Series 600 audio control system works

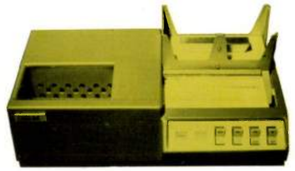
THE SERIES 600 puts your chosen sound on the air, exactly as you want it—consistently, free from error, open to changes or any degree of live participation at will. It permits 24-hour variety and diversity of programming, combined with the greatest simplicity of operation of any system of automated control. The result is unlimited freedom to automate your own individual format, with maximum reliability and ease of control.



A card for each event—a "deck" of cards for each day of the week

Punched cards are used to program the IGM 600 system and to provide the automatic log. There is one card for each feature in the format, including spots, programs, time checks, music selections and DJ intros. The source of the feature is indicated by the letter in the first column.

Program format is set up by organizing the cards in the desired order, either manually or automatically. A separate group of cards is normally made for each day of the week. There is no need to set up an established format and repeat it every half hour or hour. The most complex format can be handled without compromise as the system is completely random access. Yet changes are made as simply as removing a card or substituting one for another.



Cards actuate the system

The cards are loaded in the hopper of an NCR card reader, a standard data processing unit of high reliability, widely used as an auxiliary reader to feed telephone lines and computers.

Cards are automatically fed, one at a time, to the "read" station, and dropped in the hopper at the left when used. The controls on the front permit manual operation. The order of the cards in the hopper may be changed, or a new card inserted, at any time up to air time without affecting the program log.

Visual readout of "next event" and time

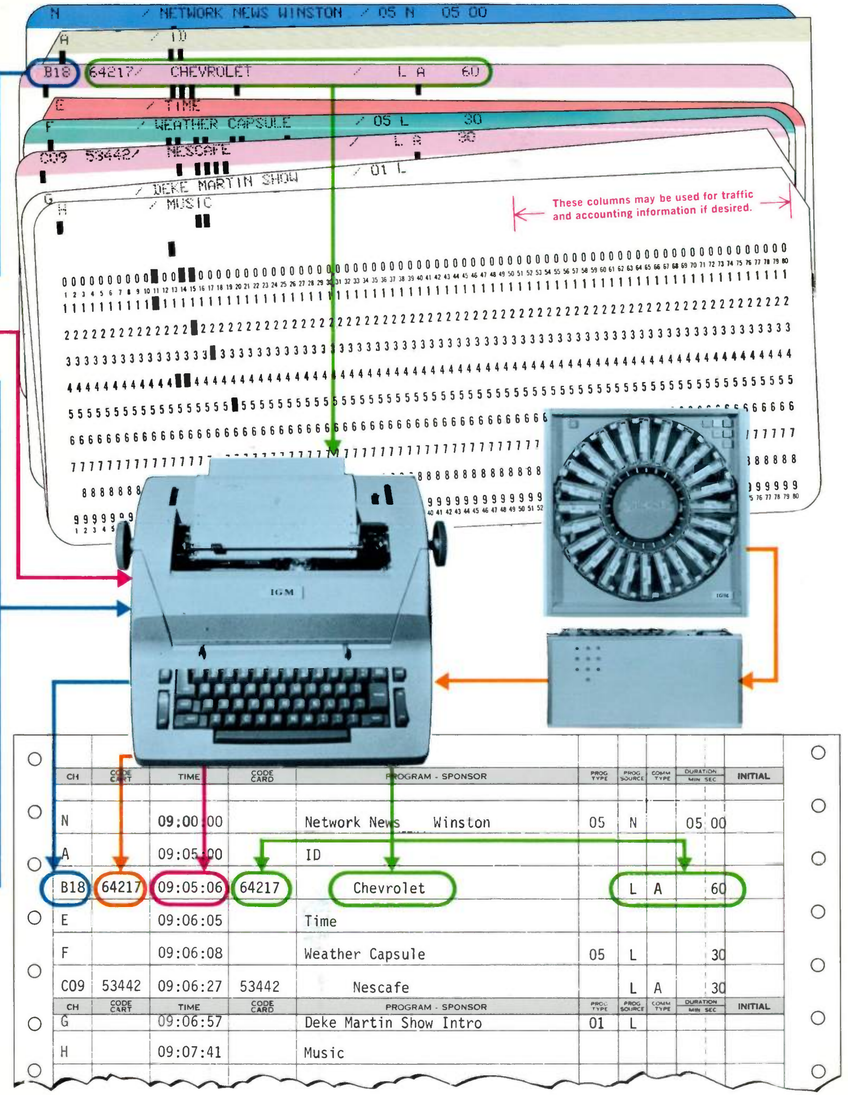
As the card enters the "read" station of the NCR, the information punched into columns #1, 2, and 3 is displayed visually as shown below, and memorized. The "B" indicates that source "B" will be used. If optional "random select" is used, the tray number of the 24-cartridge carousel is also displayed. The proper tray of the carousel is searched as soon as the card enters the "read" station. At the switching cue, the next event memory causes the control unit to start the proper channel, and feeds the typewriter with both the code designation of the source being used and the exact switching time.

Audio switching

In the control unit illustrated below, each lettered button indicates a module which controls an individual input. This can be a reel-to-reel transport, cartridge playback unit, carousel, live announcer, microphone, output of a console, remote line, network feed, or any other input. A single cable which plugs into the module carries both controls and audio. Inputs can be moved from channel to channel by changing plugs. All channels are identical.

The top drawer contains mixing and monitoring circuits, including VU meters and a speaker which can be switched from the program line to the cue bus so that any source can be auditioned. A built in fail-safe alarm warns the operator of a lack of audio and switches the system to the next event after a minimum delay of 3 seconds.

Overall control over the system is provided by the three buttons in the bottom drawer for "master start," "step," and "master stop." These are also remoted to a control studio. The channel designation buttons light up to show which source is being used and can be pushed to put a source on the air manually. The unit is modular, permitting expansion on a plug-in basis. All components are mounted on plug-in printed circuit boards and the entire unit is solid state.



CH	CODE CART	TIME	CODE CARD	PROGRAM - SPONSOR	PROG TYPE	PROG SOURCE	COMM TYPE	DURATION MIN SEC	INITIAL
N		09:00:00		Network News Winston	05	N		05 00	
A		09:05:00		ID					
B18	64217	09:05:06	64217	Chevrolet		L	A	60	
E		09:06:05		Time					
F		09:06:08		Weather Capsule	05	L		30	
C09	53442	09:06:27	53442	Nescafe		L	A	30	
G		09:06:57		Deke Martin Show Intro	01	L			
H		09:07:41		Music					

Automatic logging

The standard IBM "input-output" automatic typewriter used in the IGM 600 system operates at 15½ characters per second. Thus, the entry for the "network news" shown on the sample log, containing 47 characters, would take about 3 seconds to type. A special "skip" code punched into the network news card tells the typewriter when to stop typing from the card and skips the card out of the reader. In the second card no information is desired on the log after the description "ID". Since there are only 15 characters to be logged, the card will "skip" in less than two seconds. The maximum time to type the most complex log entry is 7 seconds. The minimum time is about 2 seconds. The typewriter can be operated manually to log manually programmed features. A writing line of either 7½" or 13" is available.

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Log form

The layout and number of duplicate copies of the log desired are custom designed for each station and printed in continuous fan-fold form. A cover sheet or extra margin can be used to provide space for a key to codes used, date, a place for the announcer on duty to sign on or other information. After the day's log is completed, the original is verified and stored. Duplicate log copies are useful as a schedule for next week, availability schedule and for other purposes. The day's "deck" of punched cards is also saved for future use.

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The IGM 600 system eliminates the labor of timing the entire format in advance to insure that station IDs are within legal limits, that commercials are broadcast at scheduled times, or that fixed programs are joined at the proper time. Instead, the system automatically adjusts to real time at intervals selected by the operator. Typically these intervals are every 15 minutes, every half-hour, or every hour. Most talk or network features have running times known in advance. Time allotted to music is estimated from the average length of selections. Extra features, typically music selections, are scheduled at the end of the period as "fill" material which are automatically skipped if not needed.

The anticipated length of a given period is easy to estimate by referring to the log for last week and considering changes. The switches shown on the panel select those inputs which will be skipped by the control unit at the appropriate time. "Skip" times are generally fixed within the hour, and throughout the day. If the format requires, circuitry can be added to provide correction to real time at different intervals throughout the day. Real time switchers and faders can be added to the system, as required, for switching where some features must start at exact times.

Use with live DJ's

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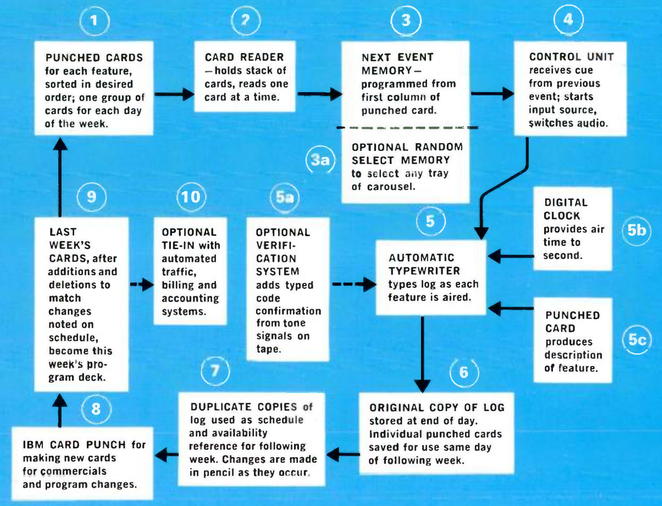

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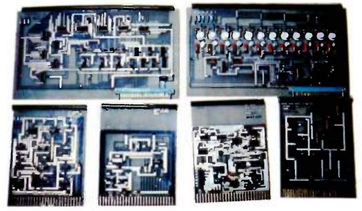

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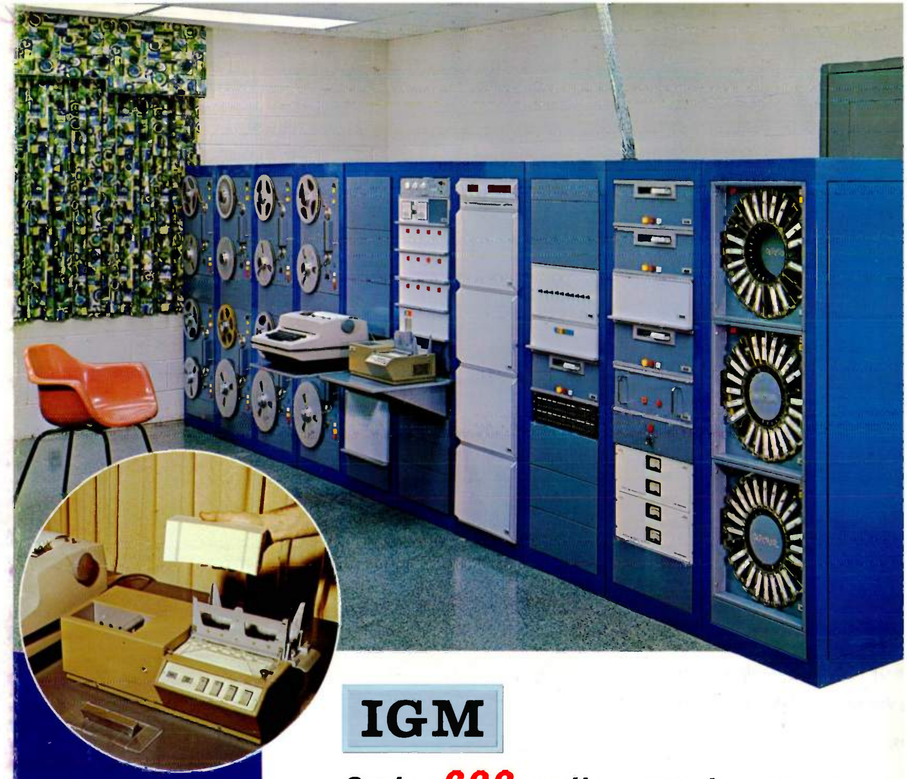

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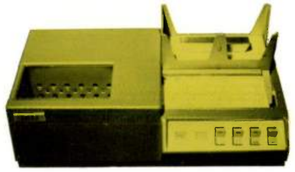

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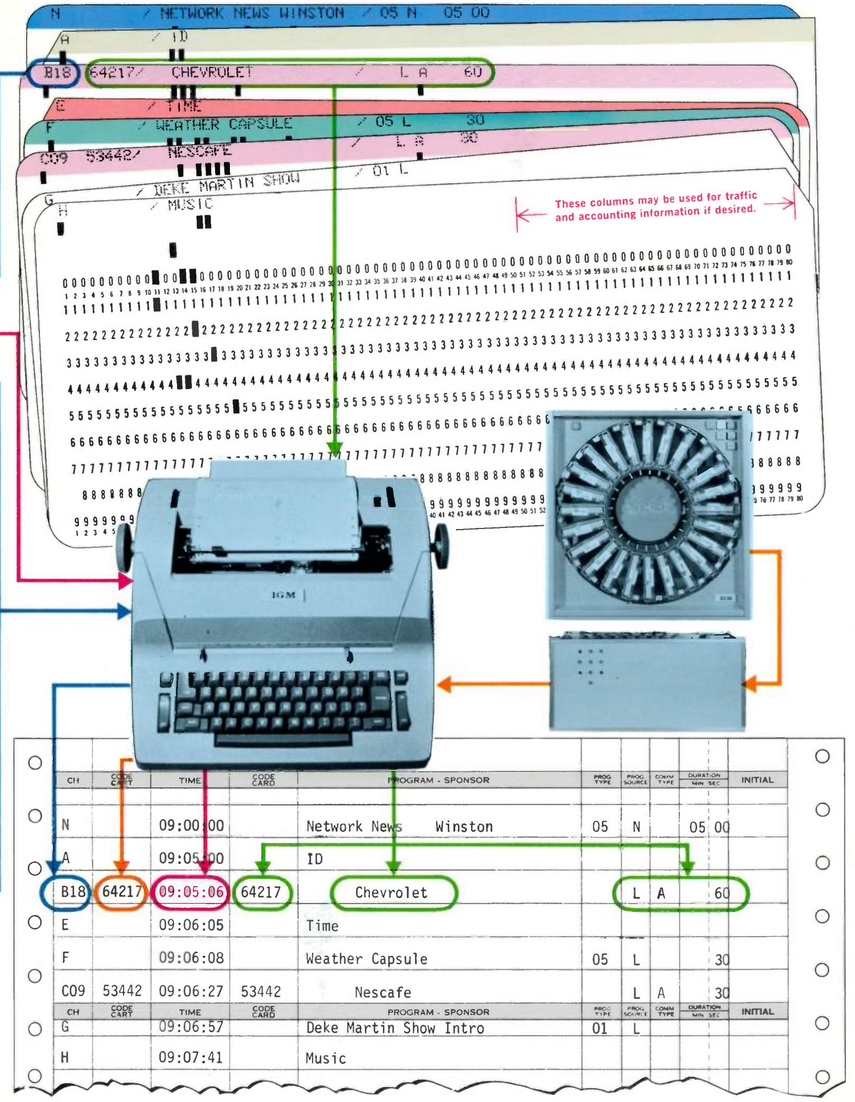

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C09	53442	09:06:27	53442	Nescafe		L	A	30	
CH	CODE CART	TIME	CODE CARD	PROGRAM - SPONSOR	PROG TYPE	PROG SOURCE	COMM TYPE	DURATION MIN SEC	INITIAL
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H		09:07:41		Music					

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The IGM 600 system eliminates the labor of timing the entire format in advance to insure that station IDs are within legal limits, that commercials are broadcast at scheduled times, or that fixed programs are joined at the proper time. Instead, the system automatically adjusts to

real time at intervals selected by the operator. Typically these intervals are every 15 minutes, every half-hour, or every hour. Most talk or network features have running times known in advance. Time allotted to music is estimated from the average length of selections. Extra features, typically music selections, are scheduled at the end of the period as "fill" material which are automatically skipped if not needed.

The anticipated length of a given period is easy to estimate by referring to the log for last week and considering changes. The switches shown on the panel select those inputs which will be skipped by the control unit at the appropriate time. "Skip" times are generally fixed within the hour, and throughout the day. If the format requires, circuitry can be added to provide correction to real time at different intervals throughout the day. Real time switchers and faders can be added to the system, as required, for switching where some features must start at exact times.

Use with live DJ's

If you are looking for a system which will relieve your announcers and studio engineers of routine switching and logging duties, yet does not require complete automation of music and especially DJ introductions, the IGM 600 Series equipment is it.

Only those features which you presently pre-record need be loaded into the system. The DJ can continue to operate from a console with turntables and microphone.

The output of the console is fed to the IGM 600 system as a regular input—"J" for example. The "next event" readout, showing the next source to be used, is remoted to the DJ's studio as is the remote control for the system. Daily schedules are prepared in the normal manner. When a recorded feature is scheduled, the DJ presses a single button which switches the audio, starts the input containing the feature, and completely logs the entry. At the completion of the recorded feature, switching to the next event, or back to the "J", is automatic. Records and talk are programmed live until the next recorded event.

As an option, music may also be pre-recorded to any extent desired—on cartridges in the case of a format requiring a limited play list, or on reel-to-reel tapes. With this system, all elements of the format except DJ talk, time checks, weather and news summaries can be searched, switched, and logged automatically. Even non-recorded features can be logged automatically from the studio at the press of a "log" button.

DJ and studio engineering personnel are thus freed from routine detail and allowed to concentrate on productive, revenue producing tasks.

IGM engineers and supplies your complete equipment package, including controls, tape transports, cartridge playbacks and all needed optional or accessory equipment. Installation by IGM factory engineers, plus thorough initial training of station personnel assures undivided responsibility and smooth operation from the start. Continuing technical, maintenance and programming services are available.