



Series 700 **IGM** *audio control systems*

- **PROVIDE HIGHLY FLEXIBLE** sequential control of inputs
- **PERMIT FAST PRE-PROGRAMMING** of hours of instructions
- **HAVE EXTENDED MEMORIES** to provide hours or even days of storage
- **INTEGRATE TALK TAPE** with music automatically

How the **IGM** 700 system gives you highly flexible, easily programmed, sequential control:

The IGM Series 700 system incorporates all the proven techniques of control and audio switching developed by IGM in over 12 years of experience with broadcast automation. These techniques have now been packaged into a highly flexible, easily programmable sequential control system which uses all the most recent advances in solid state memory and integrated circuits.

Designed with the operator in mind, the system's extended memory permits hours and hours of programming instructions to be entered into the memory quickly and easily; yet it also permits last-minute changes just as easily, without reprogramming the entire sequence. It was also designed with the engineer in mind, as it provides solid state reliability. Servicing is quick and easy, with test points and status lights on all important circuits.

Equally important, all systems are checked and life-tested by a high speed digital computer prior to shipping and installation, so that component failures common to the initial start-up of new systems are eliminated at the factory, rather than at your station. IGM Series 700 systems are, in every sense of the word, "state of the art!"

Two basic models are available:

The Model 710 — providing 1,000-event memory and control over a maximum of 30 audio sources, 5 of which can be random access sources if desired. Real time capability is provided with an external real time switcher.

The Model 730 — providing a standard 3,000-event memory (more on special order) and control over a maximum of 39 audio sources, 5 of which can be random access sources (more on special order), plus IGM's exclusive "Announce Tape Control" system and built-in real time capability.

The IGM Model 700 systems provide the ultimate in sophistication and flexibility where station format requires strict sequential control of all inputs to the system. The solid state memory of up to 3,000 events permits the preprogramming of as many as 24 hours at a time, with each hour having up to 125 separate audio events. (More hours can be preprogrammed by reducing the number of events per hour.) Each hour can be as different from every other hour as necessary. Events can be left unprogrammed so that last-minute changes may be inserted into the format quickly and easily, without moving or changing valid instructions. Events not programmed prior to air time are simply skipped. By setting up a basic hour-by-hour format, only those events which vary, such as spots, need be changed from day to day. Unchanging elements of the format, such as music rotation, jingles, news, weather and time checks, can be programmed once and left unchanged on a day-to-day basis until the basic format changes.

Programming

Programming the Model 700 system is simplicity itself. A standard 10-key keyboard on a display panel enters all instructions into the memory. This keyboard is inoperative unless the unit is placed in the programming mode by depressing the "Program" button. Then indicator lights on the display panel show the unit is ready to receive programming instructions. The next step is to decide which event of the memory is the first to be programmed. This event can be addressed directly by simply entering the desired event number from the keyboard and pushing the "Program Address" button. The readout on the panel will immediately display the programming instructions currently in that event of the memory. If the event is empty, the readouts will display all "zeros," as illustrated below (Figure 1). If programming instructions from the previous entry have not been changed, the readout will show the audio source number, the tray number (if any) and the function code last programmed into that event. Figure 2

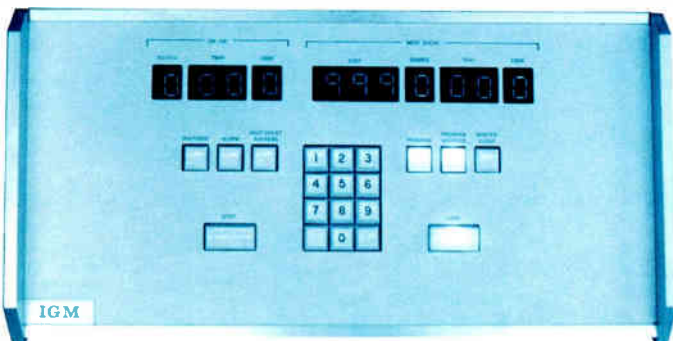


Fig. 1—readouts display all zeros if the event addressed directly from the keyboard has not been programmed.

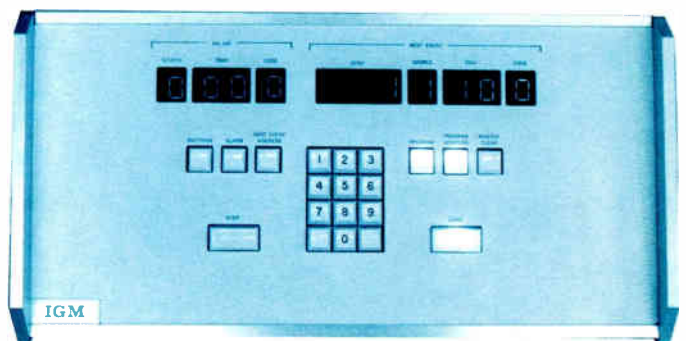


Fig. 2—readouts indicate that Event #1 contains instructions to start audio source #1, tray #10, function code #0.

Time correction

Time correction in the Series 700 system is accomplished by skipping, at preselected times, any events in the memory which have been specifically programmed as "fill" events, and then finding the beginning event in the next time period. (This event is identified by a function code #3.) The time correction feature makes it unnecessary to accurately time all events within a period to insure that station identification announcements are broadcast within legal time limits. The length of all scheduled events in a time period, say a half an hour, is simply estimated, and extra events, typically music selections, are programmed on an "if-needed" basis. The digital clock in the system will provide a time-correct command at preselected times. The command will cause the memory to skip over any events which did not have time to play and to find the first event in the next time period. This skipping action takes place virtually instantaneously (in less than a second). The time-correct function will not operate if the event on the air has a function code #1, the code insuring that a back intro, a tag to a spot, or other feature which must follow the on-the-air feature, will be aired before the time correct takes place. Standard time-correct time intervals—every 5 minutes, 7½ minutes, 10 minutes, 15 minutes, 30 minutes or 60 minutes—are available on standard toggle switches. Other special times can be supplied as required by the specific format.

Audio

A separate audio chassis provides audio switching and interfacing to audio inputs. All audio switching is smooth with no clicks or pops. A relay is supplied on each audio control card for interfacing to transports which require 28 VDC for control. The audio chassis is pre-wired for 15 audio control cards. One card and interconnecting cable is supplied with each of the potential inputs actually used. Additional cards and cables can be added at any time to permit expansion to a maximum of 15 inputs per chassis. If more than 15 inputs are required, a second or third chassis can be plugged into the first chassis. This permits up to 39 separate audio inputs to be controlled by the memory. Five of the audio inputs (more on special order) can be random access, such as the IGM Instacart, and interfacing can be added to the memory chassis to control 48 trays from each of these inputs. Audio for these inputs is switched in the audio chassis. Indicator lights on the front of the audio chassis show which audio source is on the air. These indicators also serve as manual start buttons for each audio source. The IGM announce tape audio control is also available on a plug-in basis if the special IGM "Announce Tape" capability, described elsewhere, is to be used.

Monitor and control chassis

A monitor and control chassis completes the Series 700 system. This chassis provides:

- VU meter(s)** and speaker, both of which are switchable between the output of the system and the built-in cue system.
- Low level mixing** and output amplifier(s). The mixing circuits provide smooth, noiseless switching with full audio overlap of two or more sources on a completely programmable

basis. The output amplifiers provide a nominal +8dbm output with 10db of headroom. (See audio specification on page 6.)

A built-in, integral silence sensor, which monitors the system output(s) and provides a switching pulse to start the next event in case of failure of any audio source or sources. Circuits are also provided to operate external alarms if desired.

A built-in digital clock and readout display in hours, minutes and seconds (12 hours, AM or PM). The standard clock is driven by the 60Hz AC line, but a crystal oscillator can be plugged in to provide independence of fluctuating frequency sources. Accuracy to two seconds per month is guaranteed with the standard crystal oscillator option, but greater accuracy is available if required. All crystal options include rechargeable battery back-up to protect against power interruptions. This built-in clock also provides the time base for external devices, such as real time switchers and program loggers, if they are a part of the system. Up to six remote readouts can be slaved to the digital clock to provide a common time base for all offices and studios. The clock can also be driven from any existing accurate time source which provides output pulses at regular intervals, such as every second, every other second, on the hour or once a day.

A control panel to start, stop and manually switch the system. Standard remote control chassis can also be connected to this chassis to provide full remote monitoring and control over the system. A sample remote control chassis is shown in the illustration below (Figure 4).

An "Emergency" channel input and control which permits any single input to be fed directly to the system output, bypassing both the memory and audio chassis in the unlikely event of failure of either of these two separate chassis.

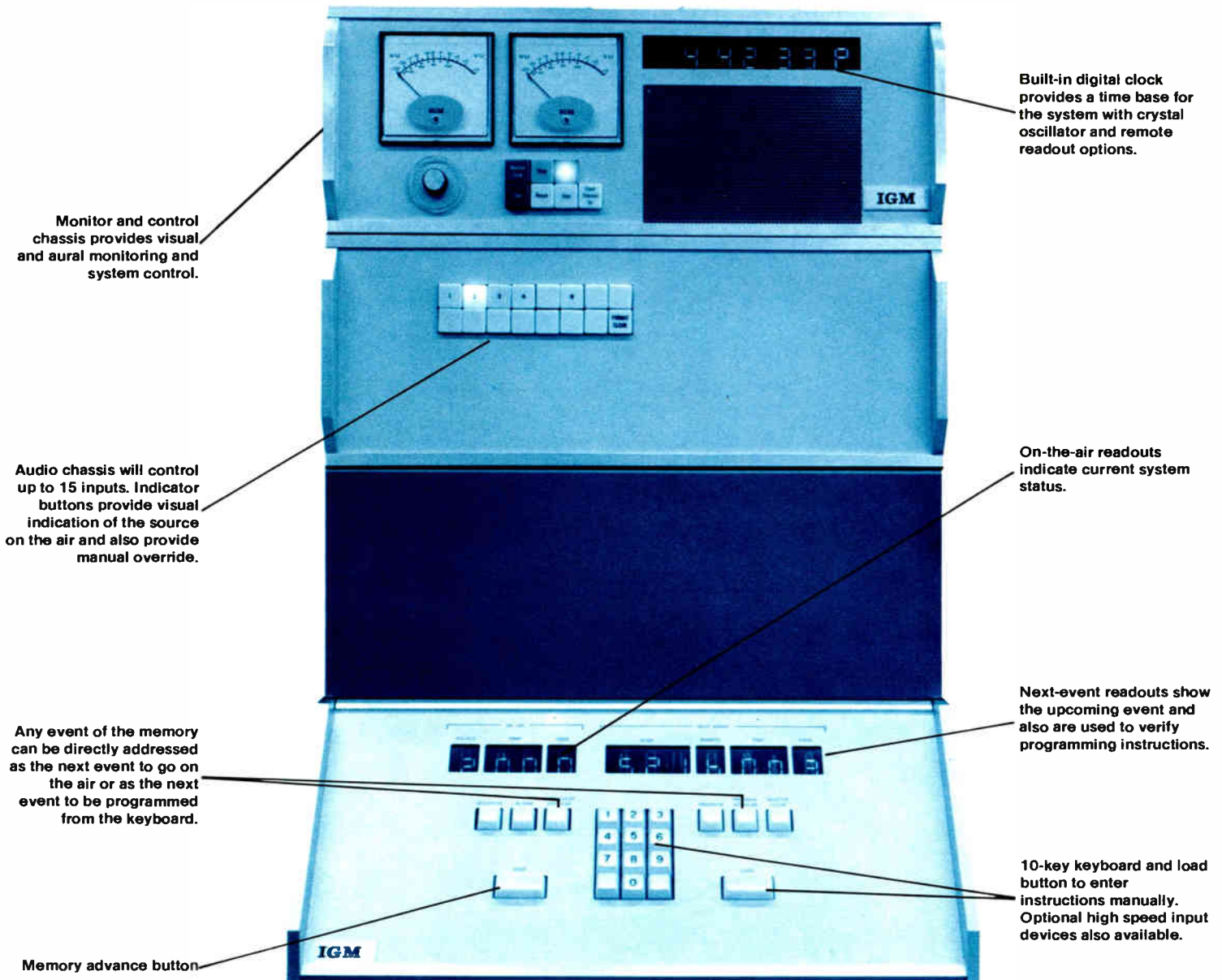


Fig. 4—remote control chassis available for full remote monitoring and control over the system.

Automatic program logging

Both the Model 710 and Model 730 will provide automatic logging with either the IGM Model 364 logging system, which provides digital printout of time and a code number from cartridges; or the IGM Model 366 logging system, which provides printout of time plus a complete log entry in English. Separate specification sheets are available for both logging systems.

With the **IGM 700**, you can set up an entire day's programming in as little as 10 minutes.



A COMPLETE MODEL 710 CONTROL SYSTEM
Compact • Flexible • Capable

indicates that "Event #1" still contains the instruction to start audio source #1, tray #10, function code #0.

If Event #1 of the memory is to be changed, the desired source number, tray number, and function code are entered, in that order, by depressing the appropriate keys of the 10-key keyboard, then the "Load" button. The new instruction will immediately appear in the readouts, confirming that the entry has been properly made. The readouts show what is actually stored in the memory, not just which buttons have been pushed. This permits a visual verification that programming instructions have been properly entered. If a mistake has been made, the entry is re-entered. As the "Load" button is pushed, the new instruction is immediately entered and displayed, and the previous instruction erased.

Once the entry has been verified the next programming instruction can be entered. If it is to be entered in "Event #2," the "Memory Advance" button is pushed to advance the readouts to event #2. If several events in the memory are to be skipped, this can be done either by pressing the "Advance" button several times, or by entering the desired event number via the keyboard and pressing the "Program Address" button. By using this direct-address capability, the instructions in any event of memory can be quickly displayed and changed, without stepping or searching sequentially through the memory until the desired event is reached. Direct-addressing in this manner can be forward through the memory, each time to a higher event number, or backwards to recheck or reprogram a lower event number. Any event of the memory can be erased by loading zeros after addressing the event number. Such an event will be skipped if not reprogrammed by air time. The memory system can be switching events on the air at the same time the operator is entering new program instructions.

On-air mode

In this mode the "Next Event" readouts show which event will be used on the air next, and which source, tray and function code has been programmed in that event of the memory. The "On The Air" readouts show which source and tray number is currently on the air and which function code is currently operative. In the illustration below (Figure 3), Event #522 is to be the next event on the air; this event has been programmed with instructions to start source #3, tray #31 with a function code #1. Source #6, tray #00 (a non-random-access source) is currently on the air and the current function code is #3. The "Next Event" readout can be changed at any time either by pressing the "Memory Advance" button which will advance

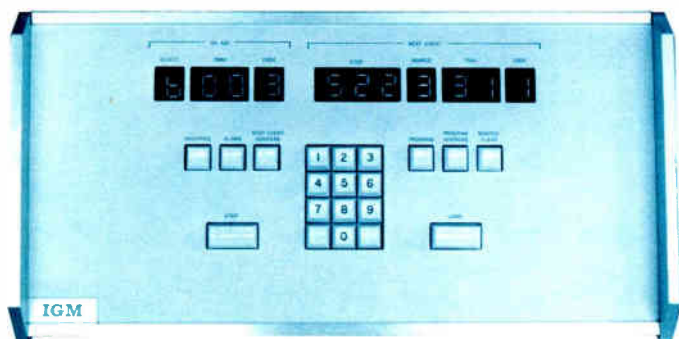


Fig. 3—next event to be on air is #522, from source #3, tray #31, function code #1. This event will play when the on-air event, shown as source #6, tray #00, function code #3, has finished.

All IGM equipment features "tomorrow's engineering today." To you this means: guaranteed trade-in value; latest technical advances such as printed circuit boards and solid state electronics throughout; modular expandability; added safety from using components rated higher than normal operating parameters; built-in cue systems and separate sense amplifiers for better production.

the memory one event, or by entering the number of the desired event on the keyboard and pressing the "Next Event Address Button."

Operating controls

Other operating controls conveniently located on the sloping front panel of the memory provide the following capabilities:

"Override" This button simulates a switching pulse and will immediately switch the present event off the air and the next event on the air.

"Alarm" When operative (as shown by the indicator light), this circuit stops the memory at the last programmed step and rings an external alarm to warn the operator to reprogram the system. If not operative, the memory will continually recycle, starting over again with event #1 when the last event is switched on the air.

"Master Clear" When operative (as shown by the indicator light), this circuit permits the operator to erase the entire memory by entering zeros in all events of the memory simultaneously.

Function codes

Four function codes are provided to give special instructions about any event of memory. Three are permanently assigned functions; the fourth can be assigned as desired by the user.

"Code 0" This is the normal function code, indicating that the next event of the memory may be delayed by placing the system in the stop mode, or allowing the external real time switcher to take over to join a program scheduled at a specific time.

"Code 1" This code indicates that the next event *must* follow the on-the-air event. In this mode, the system will not allow the real time switcher to take over, or the Master Stop circuit or the time-correct circuit to operate until the next event has played. This code would be used, for example, where an announce tape with a back announcement is scheduled to follow the music selection on the air, and to interrupt the scheduled sequence would result in an error in the format.

"Code 2" This code is a spare and may be customized to each station's individual requirements.

"Code 3" This code is used with any event in the memory which represents the first event in a new time period, and is used to keep the system on time as explained on page 4.

SPECIAL FEATURES—Model 730

In addition to providing an extended memory and expanded source control, the Model 730 incorporates other features for greater flexibility and control.

The built-in real time capability allows the operator to load into the memory the time a desired real time action is to take place. The code assigned identifies this instruction as a real time action. No external time base or memory is required. In addition, all switching action is controlled with "Transition Codes," as follows:

Transition Number	Switching Action
0	Switch off, switch on
1	Switch off, fade on
2	Fade off, switch on
3	Fade off, fade on
4	Fade down, fade on
5	Spare
6	Spare
7	Spare

These transition codes, in conjunction with the real time entry, make it possible to smoothly join network or other real time programs, insert adjacencies to real time programs, and to perform other real time and time-correct actions on a completely flexible, changeable basis.

Announce tape control logic

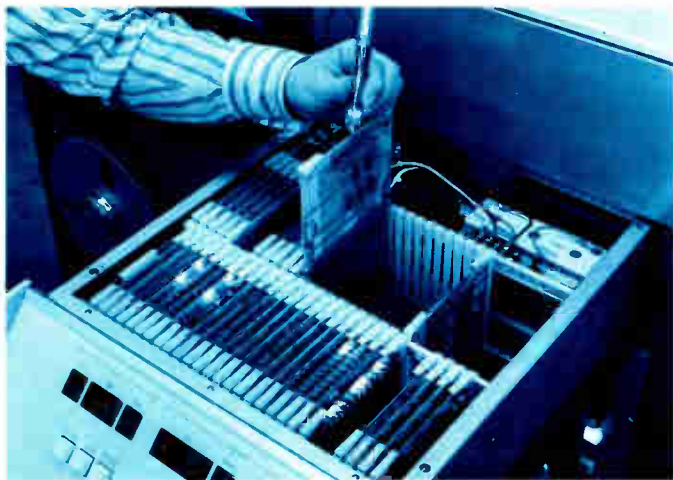
This exclusive capability is built into the Model 730 only, and provides the ultimate in flexibility for formats requiring sophisticated intermixing of announcements from an announce tape and music from cartridge or reel-to-reel sources. Two inputs are reserved for announce tapes. Special switching

tones are recorded on music selections. These tones start the announce tape if the tape is scheduled as the next event. If it is not scheduled as the next event, the special switching tone is ignored and the regular switching tone starts the next event. By superimposing the regular and special tones, both the announce tape and the music can start simultaneously. This special logic, plus the special announce tape audio mixing technique, permits the station to record music selections once and allow for either a fore intro and a back intro, a fore intro only, a back intro only, or no intros at all. The choice is made when the system is programmed; the same music selection can be used in all eventualities, depending on the desire of the announcer and the traffic schedule on the day of broadcast.

Computer compatibility

As the Model 730 is designed with future expansion and flexibility in mind, various types of input and output devices can be added. For example, the system can be modified to accept programming instructions from other types of input devices in addition to the 10-key keyboard. Examples would be punched tape, punched cards, another computer either on site or at a remote location, magnetic (computer type) tape or discs, etc. The same options are possible as output devices or storage devices. For example, storage can be added to capture the account numbers of all spots aired, along with their air time, for subsequent transmission to computerized billing systems. With the Model 730, you can completely close the loop between computerized traffic and scheduling, on-the-air switching and logging, and computerized accounting and billing.

View of the Model 710 memory system showing all circuits on pluggable printed circuit boards. Note also the logic test points and status lights for ease of maintenance. A logic probe is being used to check a particular circuit.



AUDIO SPECIFICATIONS

INPUT

-4dbm to +10dbm

OUTPUT

Balanced 500/600 ohms, up to +18dbm, normally +8dbm with 10db headroom

DISTORTION

Less than 0.5% at all levels below +8dbm between 50Hz and 15KHz

SIGNAL-TO-NOISE RATIO

Greater than 70db

FREQUENCY RESPONSE

± 1db, 50Hz to 15KHz

Quality audio control equipment to solve the problems of broadcasters. IGM, 3950 Home Road, Bellingham, Wa. 98225 • (206) 733-4567

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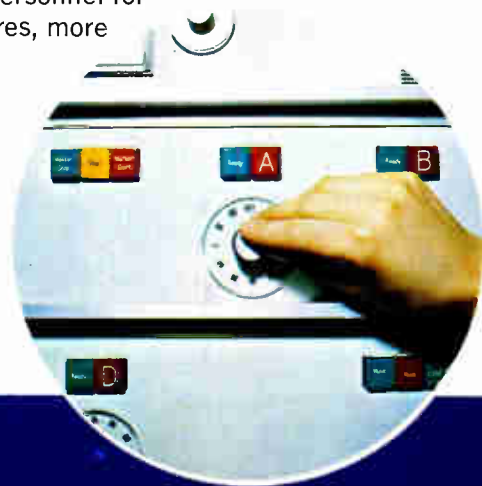


Series 500 **IGM** *audio control systems*

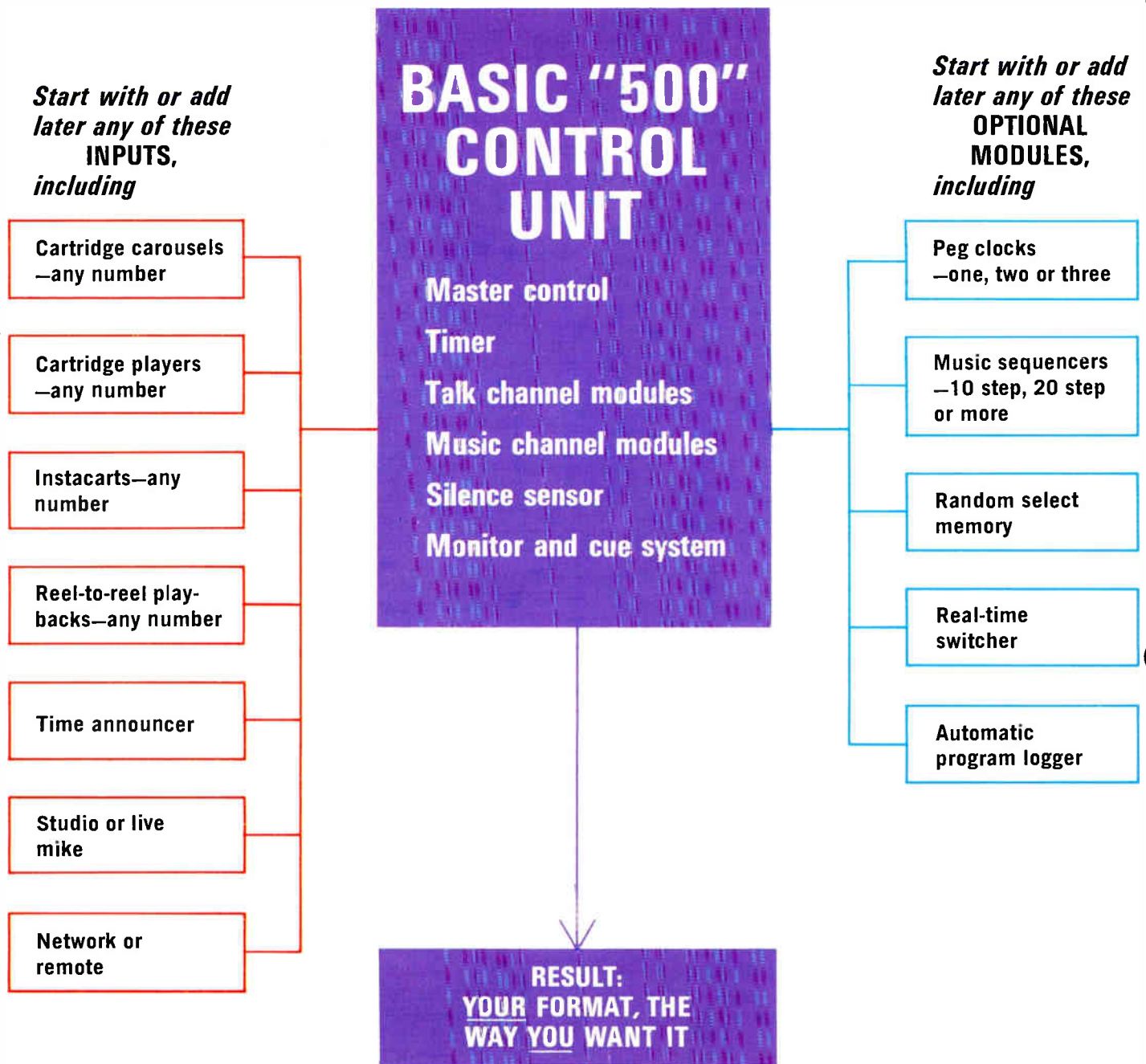
- **IMPROVE YOUR STAFFING:** IGM systems take the place of people you can't hire. Permit you to use your strongest personalities on a 24 hour per day, 7 day per week basis. Make your prime daytime talent available all night.
- **IMPROVE YOUR SOUND:** by insuring tight, smooth Monday-through-Friday consistency, extended through Saturday and Sunday. Fewer people on duty performing more stable, less demanding jobs. Fewer emergencies—IGM systems are always on the job.
- **IMPROVE YOUR SALES:** by freeing creative personnel for greater production of local news and features, more selling and promotion effort.

Exclusive advantages of the Series 500:

- Unequaled ease of programming, up to 24 hours in advance, each hour different.
- Instant adaptability to changes of format.
- Optional components, both at the start and later.
- Proven in the field by over 400 installations.



The **IGM** Series 500 control system—what it is:



An IGM Series 500 system is an “insertion system with a brain,” plus inputs and accessories to match the desires of the customer. Inputs may be individual or multiple cartridge playbacks, reel-to-reel playbacks for music or other features, plus studio or live mikes, network or remote inputs.

The basic control unit contains a timer module, a number of channel controls corresponding to the number of talk inputs, music modules—one for each music input, a master “start, step and stop” control, a monitor system, and a built-in silence sensor.

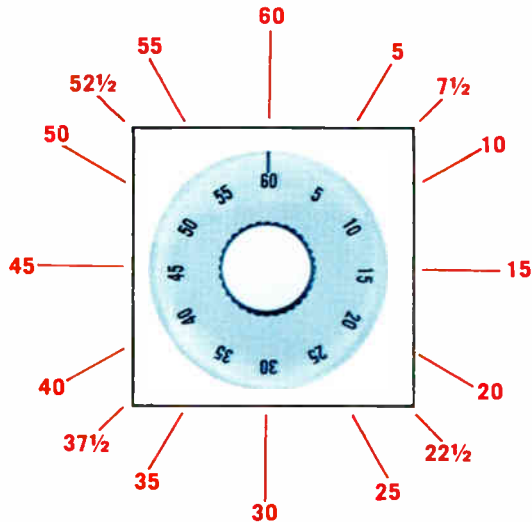
Various supplementary control devices are optional, the need being determined by the program format and operating requirements of the individual station. These include peg clocks, music sequencers, real-time switchers, random select memories and program loggers.

Each IGM Series 500 installation is not only custom tailored to the existing needs of the station, but is readily adaptable to quick changes of format. Also, more input controls and optional features can be added at any future time.

The IGM Series 500 control system—how it works:

Timer is heart of the system

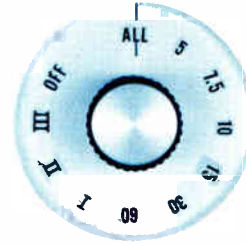
A simple, dependable 60-minute clock, readily accessible in a pull-out drawer, is the key unit in the IGM 500 system design. It consists of a 24-revolutions-per-hour motor and cam assembly which operates a switch every 2½ minutes. The motor is accurate to real time within three seconds per day. The 24-position stepping relay advances one position every 2½ minutes and provides “readying” pulses at selected 2½-minute intervals as shown in the illustration.



Readying pulses are fed to the talk channels which control talk inputs in the system. Each module will control any type of input (tape playback, Instacart, time announcer, live music, studio, remote line, or others). These inputs are normally used for “talk” features, but can also be music if desired. More than one transport can be controlled if a “sub-switcher” such as a random select memory, or auxiliary selector is used. Any number of modules can be plugged into the system. The timer readies a particular module or group of modules, scheduling them to go on the air at the next switching tone. Actual switching occurs at the end of features unless the timer is connected to optional faders to permit fading and switching at exact times.

Since features are normally not faded, the timer module is usually set 2 minutes fast with reference to studio time. This readies features 2 minutes early and insures that they go on the air at close to scheduled time.

THE IGM 500 SYSTEM makes automatically many of the same choices you would expect of an accomplished DJ in putting your programming on the air. Commercials, news, sports, PSA's, time checks and other talk material are scheduled on a real time basis. Regardless of length, they stay on until completed, then the system plays as many music selections as necessary to fill until the next talk feature is scheduled. Estimating the length of any event in advance is unnecessary as the system constantly adjusts itself to real time. The more talk features you schedule, the less music you play—all automatically.



Talk channel controls

A typical talk channel module is shown above. Each module carries an alphabetical designation as shown by the red indicator. The light comes on when the channel is being used on the air. The green “ready” light shows that the channel is scheduled to go on the air at the next opportunity. It is also a button which enables the operator to manually schedule the channel an extra time without affecting its automatic scheduling. A previously scheduled channel can be skipped by turning the switch to “off.” Either of these actions can be accomplished remotely if desired, making it possible to select and air any channel immediately from the console for insertion into live programs.

Scheduling repetitive features:

Each channel module in the system can be readied automatically by the timer module at any one of nine real time intervals and one variable time interval. Controls set for six of the real time intervals and one variable interval are shown below.



Will ready once an hour, on the hour



Will ready twice an hour, on the hour and half hour



Will ready four times an hour at 15, 30, 45 and 60



Will ready six times an hour at 10, 20, 30, 40, 50 and 60



Will ready eight times an hour at 7½, 15, 22½, 30, 37½, 45, 52½ and 60

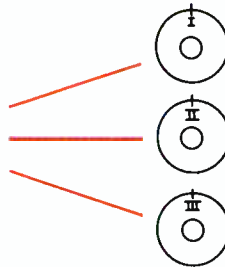


Will ready 12 times an hour at 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55 and 60



“ALL” is the variable time setting. Will ready the channel each time a music channel is used. Used for commercials, it provides a spot at every availability. The number of times it is used will depend on the number of availabilities provided in the music format and the length of other talk features. Normally, with popular music and an availability after each selection, it will schedule about 16 features an hour.

The Series 500 — easy to operate, flexible, dependable



cially wired without using a peg clock. This programming flexibility is an exclusive feature of IGM 500 systems and is available on no comparable system in its price class.

Scheduling non-repetitive or specified time features

Stations requiring further flexibility can use one or more of IGM's optional 24-hour "peg" clocks. One, two, or three clocks can be purchased and scheduled by setting "I", "II" or "III" on the selector switch.

A two-clock module is shown above. It can be added at any time and plugs into the timer module which provides the time base. Each hour of a 24-hour day is represented by the 24 columns of holes from top to bottom. Each 5-minute increment of an hour is represented by the 12 rows of holes from left to right. Placing a special peg at the desired intersection will schedule a selected channel or channels at any 5-minute interval or combination of 5-minute intervals throughout a 24-hour day.

The clock "I", "II" and "III" positions can also be used, in whole or part, for customized scheduling. For example, if the format requires a given feature every hour at 15 and 45, this can be spe-

Channel priority

Each talk channel control in the system can be set to a different time interval, or any number of channels can be set to the same time interval. In either case, note that more than one channel will become ready at the same time. If Channel A is set to "15" and Channel B to "5," both will be ready on the hour, quarter hour, half hour and three-quarter hour. In this case, the channels will be switched on the air in alphabetical order. Thus, the most important feature, or the feature with the most critical time requirement, should be scheduled on Channel A, the second most important on Channel B, and so on in order.

Each time a feature of any type (talk or music) ends, the control unit searches the channels in their order of importance. When all "talk" or alphabetical channels scheduled for play have been satisfied, the unit will automatically return to music. If, at the end of the music selection, there are no scheduled talk features, music will continue to play, checking at the end of each selection, until a talk feature or features are scheduled. In this manner, the unit constantly adjusts the format to keep itself on time.

WHY THE IGM 500 SYSTEM WILL DO THE JOB FOR YOU

The IGM 500 is sometimes called a "time insertion" system because non-music features are inserted between music selections on a real time basis. No definite sequence of events is established in advance. Each time a feature ends, the next event is determined by what time it is. Sequential systems require that you preplan or estimate how many music selections you will need. The 500 system does this for you, automatically.

The peg clock option allows you to schedule features during one time period, say a given half hour, then again in any desired future half hour. This can be done at one time, without changing any settings on the control system, up to 24 hours in advance. No need to establish one format which is used hour after hour. The peg clock is an exclusive feature which distinguishes the IGM 500 from sequential systems.

If you find it necessary to interrupt automated programming to broadcast a special feature such as a news bulletin, it is easy to adjust the equipment. You simply decide which features need to be rescheduled (such as commercials), set the selector switch on that particular

channel or channels, and the control unit automatically readjusts the sequence of events.

If you need sequential control over music transports to insure that a certain music format is followed, the music sequencer option provides this. Since only the music format is programmed on the sequencer, settings need not be changed until the basic music format changes. Commercials and other non-music features can be changed by simply turning one switch, and the music channel will automatically play more or less music to compensate. No other system provides this flexibility.

Since there is no set, repetitive sequence of events it is easier to override the system for live features. You can even use all inputs to the system during live periods by calling for them remotely from the console, in any order desired, one event at a time.

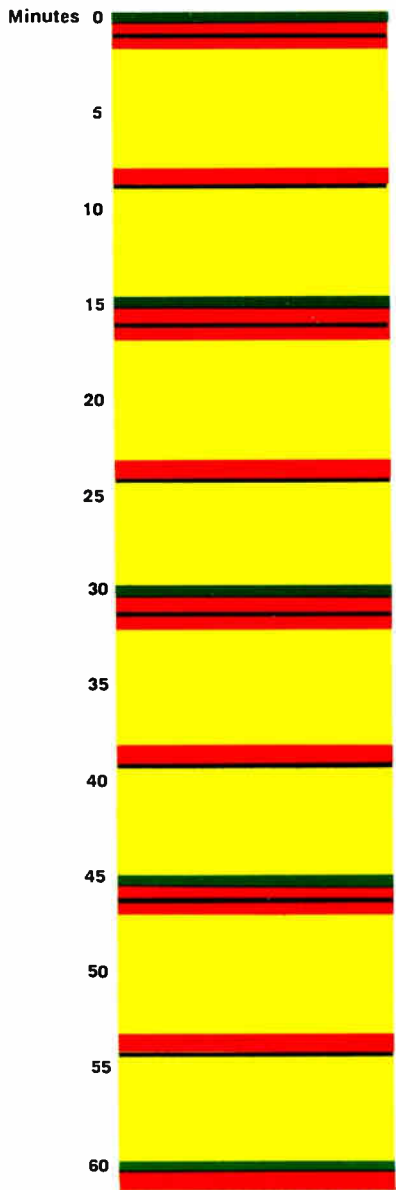
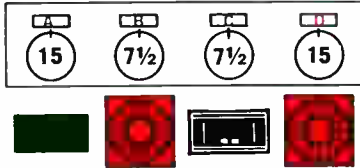
You buy now only what you need now. If you need more sophisticated control later, or more input capacity, you add it later on a plug-in basis. Even the smallest system can be expanded to the largest system in this way.

SAMPLES OF PROGRAMMING FLEXIBILITY

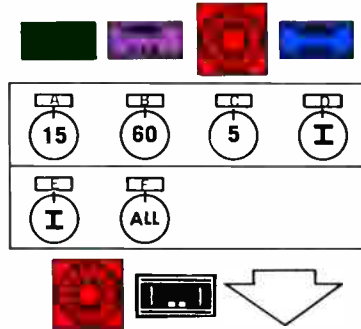
An important distinction of the IGM 500 is the ease with which talk features for any format can be set up and changed. Assume that switching tones allow talk insertions after each selection.

	ID & program promo		Local feature		News		Program promo (spot breaker)
	Time		Spot		Music		

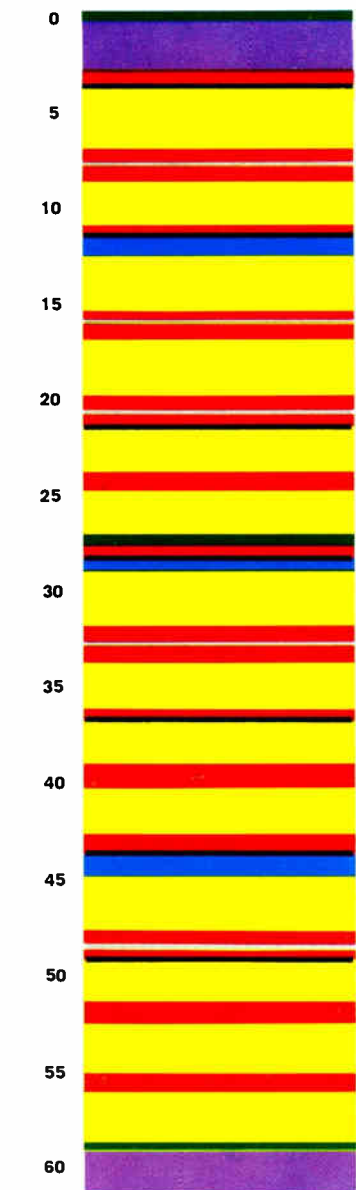
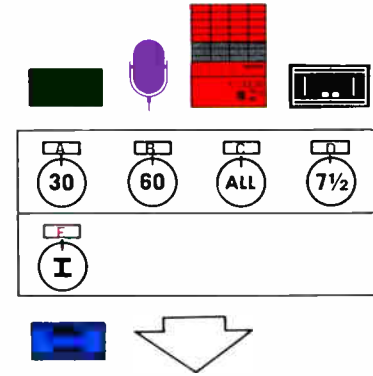
Format No. 1, using four talk input channels, set as shown creates this format



Format No. 2, using six talk input channels with "I" (clock) set to 10, 20, 40 and 50, creates this format



Format No. 3, using five talk input channels with "I" (clock) set to 15, 30 and 45, creates this format

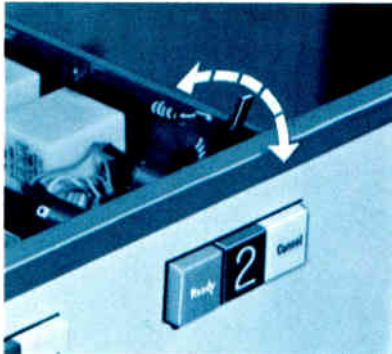


The combinations are virtually limitless. More important, any single channel can be rescheduled at any time without affecting any other channels. You simply play more or less music. Flexibility is the key to the system.

Simplicity is important too. Since the format is so easy to set up and change, relatively unskilled personnel can learn to operate the system in a matter of minutes. This frees your skilled personnel for more productive tasks.

Music modules—one for each music input

IGM's music modules permit the same degree of flexibility in music inputs as in talk inputs. Each music module is a single input—one for each transport—and you can order as many as you need. You may also add more channels later and plug them in. Here's how they work:



1. In the "end cue" mode, you play all of Music #1 and transfer to Music #2 via metal tape at the end of the reel. If you have three music modules, Music #2 will switch to Music #3, and Music #3 will switch back to Music #1. Order as many modules as you have transports.

2. In the "one-to-one" mode, you play one selection from Music #1, one from Music #2, then return to #1, and alternate. With three modules, you play one selection from each, in order, then repeat. Again, you may set any number of modules to this configuration.

3. In the "external" mode, you ready the module from an external source. This can be wired in several ways.

(a) from the timer in the system, which might schedule one or more channels every 15 minutes, or every half hour. Any pulse from the timer module can be wired to the external position and changed by a jumper connection.

(b) from Clock #1, #2, or #3. This option is normally used to transfer from Music #1 to Music #2 at a specified time, such as 9:00 a.m.; from Music #2 to Music #3 at 1:00 p.m., back to Music #1 at 3:00 p.m., etc. It can also be used to call for a particular module at a specified time to broadcast a special program, then return to the normal pattern as outlined above.

IGM TAPED MUSIC SERVICES



As the largest supplier of taped music to the broadcast industry, IGM offers individual stations access to over 20,000 hours of original selections covering the entire spectrum of musical sounds, chosen with discrimination and expertly classified. Over a dozen different taped services are offered to broadcasters, announced or unannounced, monaural or stereo. IGM music services are fully described in a separate brochure, available on request.

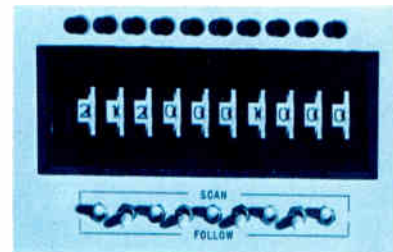
(c) from the "music sequencer," as explained below.

4. You may manually program the channels, either at the system or remotely.

If you have two or more music channels, they need not be all set to the same option. For example, Music #2 may be programmed to play twice an hour from the timer module, while Music #1 is used during the balance of the hour. You may program each module individually with a three-position switch as between "end-cue," "one-to-one" and "external" modes.

Optional music sequencer

If sequential control over the music modules is desired, the music sequencer module is added. The unit will handle up to nine music channels. Two models are available: 10-step sequencer, which permits the music modules to be intermixed in any order up to 10 steps before repeating the same sequence again; and a 20-step sequencer, permitting up to 20 steps before repeating.



Music sequencer, 10-step as shown above, or 20-step, is optional feature.

Several additional features are standard with the music sequencer:

1. The Scan/Follow switches (shown below thumb wheel selector switches in illustration) permit you to lock two steps of the sequence together (Follow). This is used where introductions are recorded on a "talk tape," with music selections on one or more transports. The "Follow" feature insures that the music always follows a fore-intro, or that a back intro always follows music. Any other readied channels in the system will be ignored until a "scan" switch is reached. At this point, voice channels are scanned, and if ready, put on the air. If no voice channels are ready, the sequence as programmed on the music sequencer continues.

2. The indicator lights (above thumb wheel switches in the illustration) show at a glance which step of the sequence will be used next.

3. Reset (starting sequence over again) is possible in two ways. First, any unused steps in the sequence may be skipped by turning the thumb wheel selector to the "O" position. Second, reset may be accomplished on a time basis where it is desired to start each 15-minute or 30-minute period with a specific transport. The sequencer will reset to Step #1 on any pulse from the timer module (15 minutes, 30 minutes, etc.) or from any of the peg clocks.

4. While the music sequencer is normally connected to permit intermixing of two or more music channels after one selection from each, it can also be wired to permit intermixing at any interval from the timer module, or transfer from module to module at specified times from the peg clock.

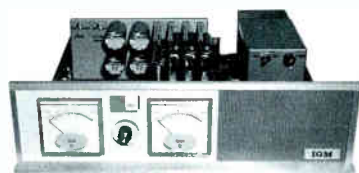
Standard master control



This module provides control over the system. The "Master Start" button starts the system by putting a music selection on the air. The "Step" button allows the operator to manually switch to the next scheduled channel, or music in the event no channels are ready except music. This button also lights up when a switching tone is present in the system. The "Master Stop" button, when pushed, will shut the system down at the end of the feature now on the air. Since the output is also fed to a pot on the console, this button can be pushed and the audio faded at any time for live inserts of an unscheduled nature.

Optional remote

All three control functions are also provided remotely. Additional functions can also be remoted. Typical additions are remote "ready" buttons for some or all channel modules, and a button to cancel the ready condition of all channels. With these controls remoted, the system can be used as a source of pre-recorded features, such as commercials, during live periods by simply readying the desired channel manually and pressing the "step" button. Return to live programming is accomplished by pressing the "Master Stop" button during the pre-recorded feature. It is also possible to feed the output of a console or news studio to a channel in the system if automatic switching in and out of live features is desired.



Monitor panel

Switching is accomplished in the various channel modules. Audio is fed via a large printed circuit board underneath the drawers and interconnecting cables to the monitor panel. Here it is mixed at low level, and reamplified. Low level mixing permits smooth, noiseless switching. Sufficient output level is supplied to permit the system to feed the transmitter direct or through a console as desired. Systems are typically connected both ways, with transfer accomplished by a switch. This allows the console to be devoted to production while the system is on the air.

The VU meter, two in the case of stereo, is switchable between the program and cue bus with the button marked "cue." This also switches the monitor speaker. All input levels can be set to the same standard. A toggle switch is provided in stereo systems to switch the speaker from left channel to right channel.

Silence sensor

All systems also contain a built-in silence sensor which acts as a fail safe in the event of failure of any source. An adjustable time delay is provided, from 3 to 12 seconds, after which a relay operates and provides a switching pulse to the system. This starts the next scheduled event. The "reset" light comes on, and contacts are available to ring an external alarm to warn the operator of a system failure. In the meantime, the system is back on the air. Once the trouble is located, the alarm can be turned off by pushing the "reset" button.

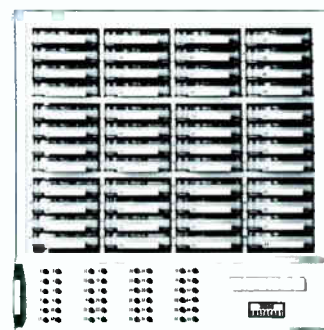
OTHER OPTIONAL EQUIPMENT to supplement the basic IGM 500 System

(Detailed specification sheets available)



MOS-type, random select memory

Completely solid state, using MOS integrated circuits. Memory capacity starts at 25 steps, and can be expanded to virtually any length at low increment costs. Standard unit provides 200-step memory, control, and audio switching of up to seven sources, normally multiple cartridge playbacks. Ten-key keyboard programming, changeable while in on-the-air status. Read-outs of next event and current event codes.



Instacart

Instantaneous random access to 48 cartridges, without waiting time for search. Accepts all NAB standard "A" series cartridges. Cartridge trays slide out from the front for ease of change. Separate motor and precision drive for each stack of 12 cartridges. Individual heads for each of 48 cartridges.

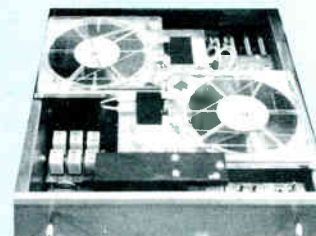


Automatic program logger

Provides permanent printed time record on inexpensive adding machine type paper. Model 362 prints verification by time, channel source and code number, using simple 5-digit encoding and decoding system of proven telephone "touch tone" dialing type. Model 363 prints time and channel source of each program event, without coding.

IGM time announcer

Two-cartridge system, one for odd times, one for even. Always cued, ready to use. Easy to set on time with built-in cue system. Accurate to within 30 seconds of real time. Automatic lock-out in case of power failure. Solid state switching and amplifiers. Use of 1 KHz cueing tone and 150 Hz switching tone permits local recording of time tapes.

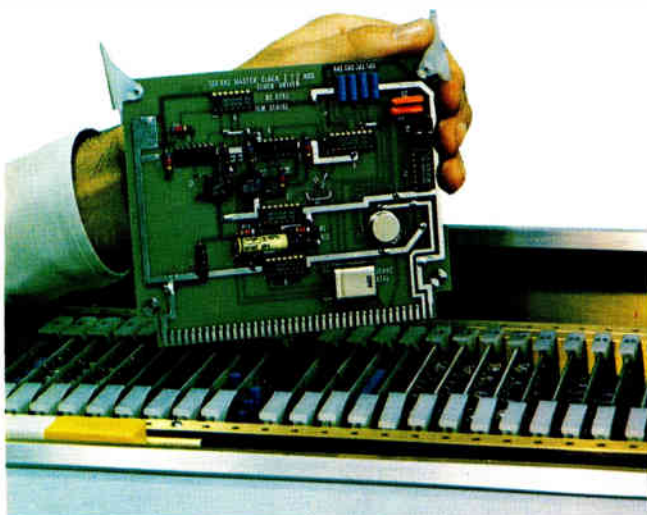


In all **IGM** equipment – "tomorrow's engineering today"

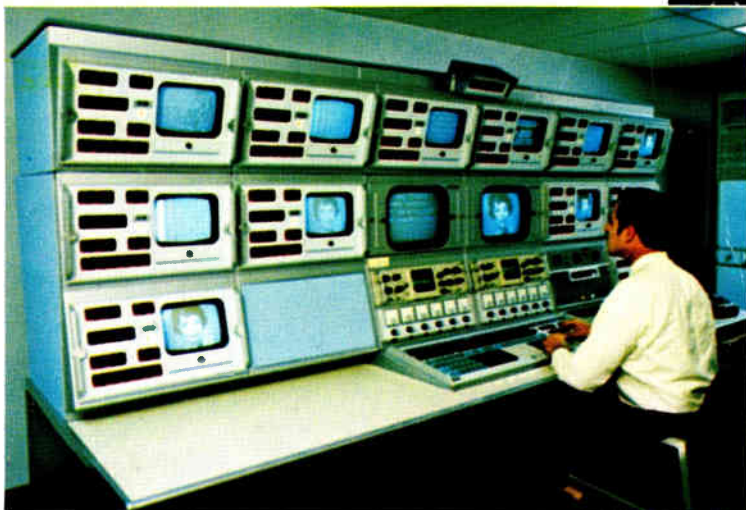
GUARANTEED TRADE-IN VALUE. As one of the most effective safeguards in the industry against sudden obsolescence, the purchaser of any IGM equipment is protected by an agreement establishing a definite trade-in value for any future date.

CIRCUIT BOARDS, etched on heavy duty epoxy glass, are employed virtually throughout. Each module plugs into a drawer which is mounted on slides for easy access to all circuits from the front of the unit. Modules are interchangeable and can be moved to new locations if it is necessary to expand the system. Additional drawers can also be added, and plugged in.

ALL SOLID STATE, using silicon transistors and silicon diodes. Program and monitor amplifier are interchangeable providing a built-in spare.



Plug in circuit boards using solid state integrated circuit components, many of TTL type, are typical of IGM equipment.



INDIVIDUAL PLAYBACK COMPONENTS can be moved from channel to channel by changing one plug per input. All control and audio connections are contained in a single cable and plug.

SEPARATE SENSE AMPLIFIERS. Individual playback components, including reel-to-reel units, have their own sense amplifying equipment. This permits automatic cueing of tapes, and means the entire system is not dependent on a single switching tone detector.

BUILT-IN CUE SYSTEM, including VU meters and monitor, permits all levels to be set to the same standards. The result is better production.

ALL COMPONENTS ARE rated considerably higher than their normal operating parameters, providing a comfortable safety margin.

AUDIO SPECIFICATIONS

IGM 500 control systems

- Output**
Up to + 18dbm, balanced 500/600 ohms
- Distortion**
Less than .5% at all levels between 50Hz and 15KHz
- Signal to noise ratio**
– 70 dbm
- Frequency response**
 ± 1 db, 50 to 15KHz



IGM Series 600 audio controls are punch card actuated, specialized computers for broadcast programming, readily tied in with automated traffic and accounting. Random access to all sources is inherent. Accurate, verified log is automatically typed.

Audio video controls by IGM are used to automate the switching of multi-channel ETV systems with as many as 36 inputs and 14 outputs, monitored and controlled from a single console. IGM also produces non-duplication switching systems for CATV.

IGM

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INTERNATIONAL GOOD MUSIC

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Sales and technical service representatives in principal cities