



McELROY

DEPENDABLE High Speed Communication

By SKILLED Communications Engineers

of long EXPERIENCE and INTEGRITY

Introducing

Here are the facts behind the "story of McElroy" — facts about their personnel and their plant. They are unique in the annals of manufacturing, and the basic reasons for the superiority in quality and precision.



T. R. McELROY . . .

the man behind the equipment, World's Champion radio telegrapher, thirty years in the communications field as operator, manufacturer and executive.



J. F. RIGBY . . .

Communications consultant and Manager Training Division. Thirty years and more in the business as operator and personnel director. Has followed communications development from the spark days through mechanization.



RAY H. DePASQUALE . . .

Sales Manager, McElroy Manufacturing Corporation, and President, the Technical Materiel Corporation, twenty-five years as operator and communications engineer on mechanized system operations.



W. J. GALIONE . . .

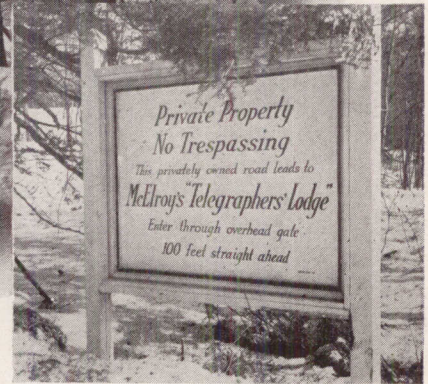
Assistant Sales Manager, McElroy Manufacturing Corporation, and Vice President, The Technical Materiel Corporation, systems engineer on teletype and automatic telegraphy.



Entrance Gateway



The Lodge



Direction Signpost

Telegraphers' Lodge is located at Littleton, Massachusetts, in the heart of the New England rural manufacturing area. Situated on the shore of a wooded lake, the factory building contains all of the precise mechanical machinery necessary to the manufacture of high grade communications terminal equipment. There the machinist will find all the tools necessary—Brown and Sharp millers and grinders, shapers, Duall equipment, and precision lathes, together with all the necessary mechanical test equipment. A complete electronic shop insures that the electronic portions of the equipment are accurate and carefully tested.

The entire site covers something over ten acres, and adequate living facilities are provided for visitors as well as for engineers working late into the night. The area is adequately fenced so that classified work may be carried on in complete secrecy.

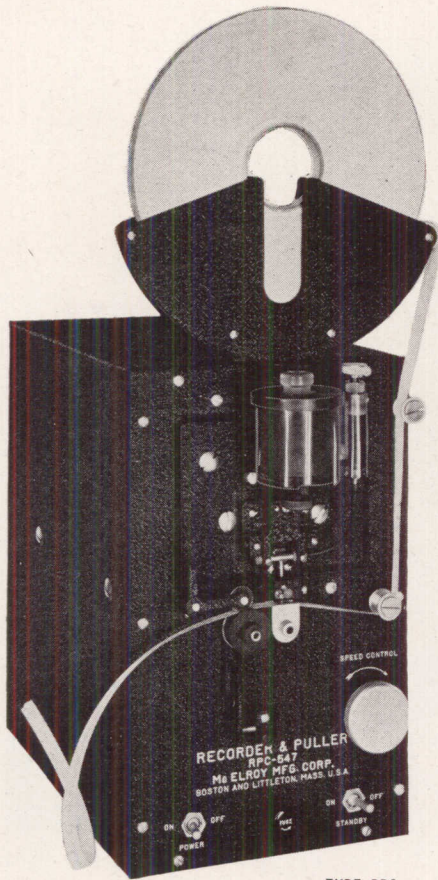
Ted McElroy has trained thousands of members of the armed services in automatic telegraphy, as well as many visitors from foreign lands, and this training will continue aided and assisted by Frank Rigby, with thirty years of experience in personnel and training work.

An ideal place to work—to produce Communications Equipment the kind of equipment that must operate twenty-four hours a day without failure . . .

Telegraphers' Lodge

McELROY RECORDER and PULLER . . . Type RPC

COMBINED UNDULATING-TYPE RADIOTELEGRAPH RECORDER AND TAPE PULLER



TYPE RPC

OPERATING
POWER
110/117 VOLTS
Single Phase
50/60 CYCLES
Also available for 210/240
volts 50/60 cycles.

WEIGHT
40 LBS. NET
18x21x12 $\frac{3}{4}$ inches.

SIZE
18" x 16" x 7 $\frac{3}{4}$ "
Gross weight packed for
overseas shipping 60 lbs.
crate size approximately

The McElroy undulating type Ink-slip recorder and tape puller type RPC incorporates five features not found in recorders generally.

Speed attainable with this unit is 1500 words per minute and the design features which give this speed are responsible as well for the enduring structure of the recording mechanism, fabricated of steel, beryllium copper and heavy laminated plastics.

The recording coil is only four ohms impedance, requiring a few turns of comparatively heavy wire. This low impedance characteristic of the recording coil allows the use of heavy and durable parts in its construction.

The tape drive, an integral part of the recorder and puller includes a counterpoised frame through which the drive shaft is geared to the motor. The torque of the drive mechanism thus automatically adjusts itself to the load. Losses due to ordinary friction coupling between the motor and drive shaft are avoided.

The tape is picked up and allowed to pass under the recording pen when the tape end is presented to the drive mechanism. The operator is not required to thread the tape through.

The tape roll is held freely in position. The roll does not need centering on the hub, no part of the magazine need be unlatched, and the free end of the tape cannot tangle or twist.

The ink well is transparent lucite. The amount of ink in the well is always visible.

Ink cannot splash or drip into the recording mechanism or into any part of the recording coil because the pen point is well below the level of the recording mechanism, which is housed within the recorder box and is connected to the pen by means of an amplifying linkage.

The magnetic field in which the recording coil works is provided by a large alnico permanent magnet. Use of a permanent magnet rather than an electromagnet prevents heat rise due to operation. The service of the recorder will not be interrupted by burned-out field coil windings.

The recording coil is driven by sharply peaked power impulses delivered by the McElroy Differentiating amplifier Type RDA. Power is applied to the coil only during the instant that the coil must be put into motion, and for the greater part of the mark and space period, the coils bears no current.

Thus, high driving power is given to the coil with little damaging heating effect. This principle, an original McElroy development required five years of engineering and trial.

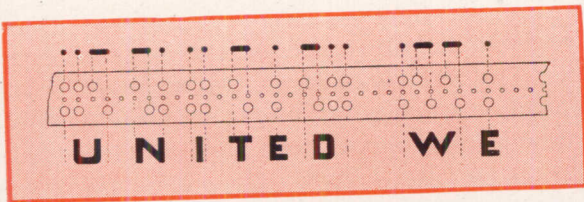
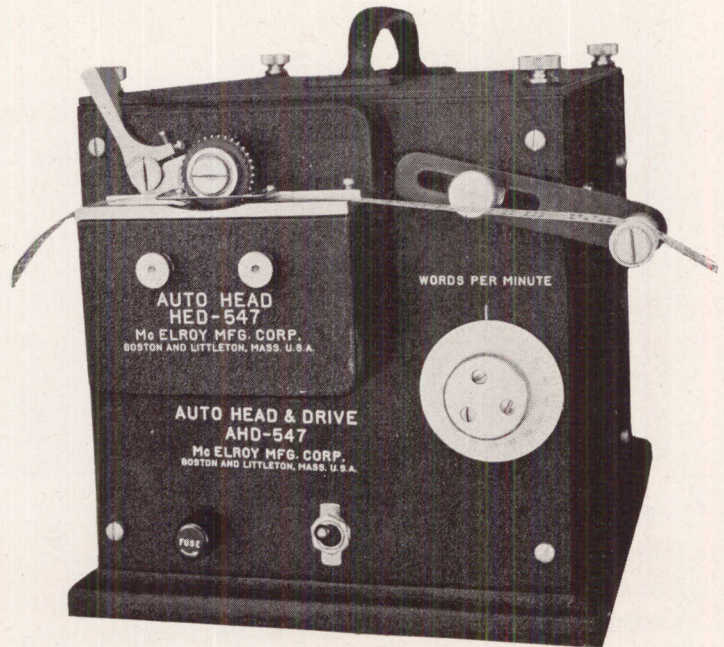
More complete description of the functioning of the Type RDA amplifier is given in the catalog page describing RDA.

McELROY AUTO HEAD and DRIVE

TYPE AHD
AUTO HEAD AND DRIVE

TYPE HED
AUTO HEAD

A Combination that provides
SPEED • SIMPLICITY • RELIABILITY

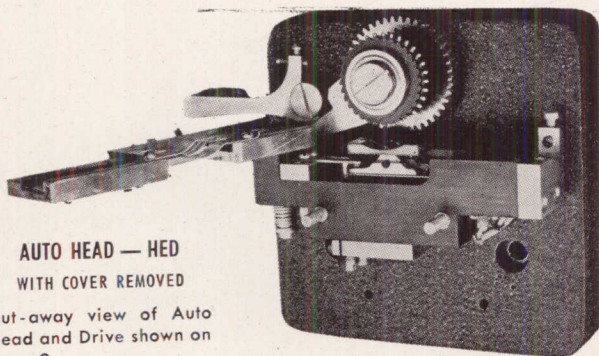
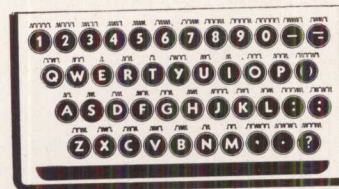


The McElroy type HED is the fastest mechanical Wheatstone keying head currently available. This unit is now in widespread use in China, the French and Dutch colonies and elsewhere where maintenance problems are particularly severe. It was chosen for these services by communications engineers who required a simple and reliable keying device, easily operated and easily repaired. Special beryllium copper springs and short pecker pins prevent bending of contacts which is usually the reason for "ghosting" at high speeds.

When the type HED is combined with the variable speed drive the type number becomes AHD, and

makes possible a self-contained unit for full AC operation at speeds variable from 10 to 500 words per minute.

The HED and AHD provide polar contact output, and will read all Wheatstone tape prepared by a Kleinschmidt, Creed or McElroy perforator.



AUTO HEAD — HED
WITH COVER REMOVED

Cut-away view of Auto Head and Drive shown on page 9.

OPERATING POWER AHD

110/117 Volts — Single Phase • 50/60 Cycles

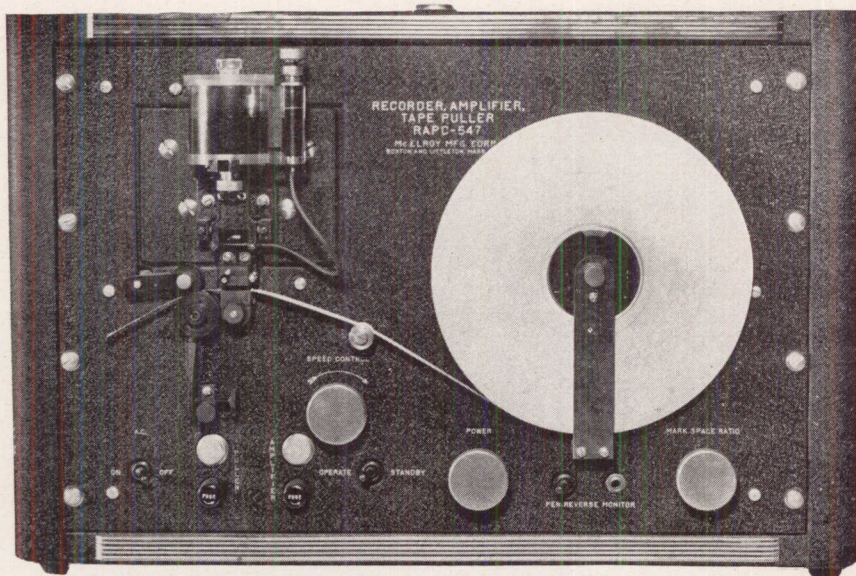
Also available for 220 volt operation.

NET WEIGHT: HED only 2 lbs. • AHD 13"x8¹/₂"x10"
SIZE: HED 4x4x3" • AHD 23 lbs.

Gross Weight packed for overseas shipment

HED 4 lbs. Size 6x6x6"
AHD 38 lbs. Size 18x14x15"

McElroy



**McELROY
RECORDER,
AMPLIFIER
and
PULLER
Combination
Type RAPC**

The recorder combination shown above fills a long felt need for a complete automatic undulator unit. In panel space of nineteen by twelve inches this unit provides a high speed undulator tape recorder, with high speed puller mounted directly under the pen for best pulling action, together with space for the tape reel which incidentally automatically centers itself when replaced.

This unit uses the McElroy pulse method of record-

ing, with built in pulse amplifier and heavy Alnico pen magnet. The puller is of the smooth running CTP type, the speed of which will not vary from the calibrated setting, making the equipment ideal for the recording of teletype impulses in fixed ratio to base speed. Moreover, the units may be easily mounted in dual or triple form and interlocking switches provided so that one unit will start when the other runs out of tape, thus preventing breaks in copy.

INPUT

TONE...

Any tone input from 600 to 6000 cycles at zero DB level.

CONTACT...

This connection provides for the making of tape by means of a hand key or on-off contact device. Such tape can be scanned by a McElroy scanner for retransmission.

FREQUENCY SHIFT...

Operation direct from the receiver of a frequency shifted signal, either from the discriminator or second detector of an FM receiver, or by mon-

itoring either mark or space with the receiver BFO at audio levels.

VOLTAGE...

Operation from any source of mark and/or space voltage.

TELETYPE...

The output of any teletype may be used to place teletype characters on tape for retransmission by scanning, or for storage without a reperforator, or of course the recorder will record the teletype pips off the air.

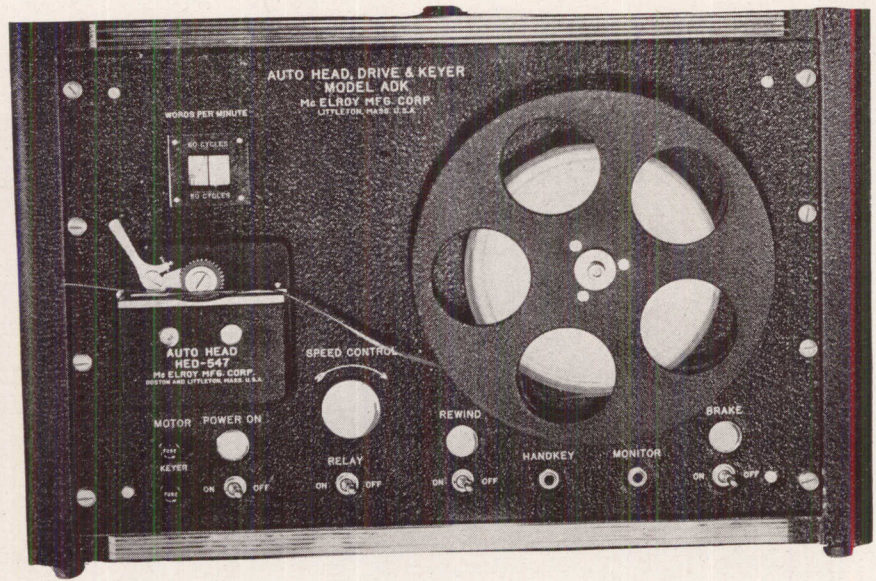
This unit will operate on either the mark or space impulses, a sense switch being provided for reversal of recording. Bias and power controls and indicating fuses are provided. The equipment is entirely modern in conception, and many smaller but nevertheless important points such as visible ink level, ease of cleaning, and tape threading have been taken care of

in an exceptionally satisfactory manner.

OPERATING POWER: RAPC 110/117 volts single phase 50/60 cycles. Also available for 220 volt operation.

NET WEIGHT.....90 lbs. **SIZE**.....18x25x15 Inches
Gross weight packed for overseas shipment
140 lbs.....20x28x18 Inches

**McELROY
WHEATSTONE
HEAD, DRIVE
and
KEYER
Combination
Type ADK**



The unit shown above is the companion unit to the type RAPC shown on the opposite page. Combining the Wheatstone head, variable speed drive with 50 to 1 ratio, and RVK amplifier, this unit will key at speeds up to 500 words per minute.

Tone, relay, voltage and polar contact outputs are

available making the instrument extremely versatile.

A simple and reliable rewind is built into the unit, and braking is provided when the unit is used at high speed. The entire instrument may be mounted in nineteen by twelve inches in a standard relay rack. All controls are easily accessible on the front panel.

OPERATING POWER TYPE ADK

110/117 Volts • Single Phase • 50/60 Cycles.

Also available for 220 volt operation.

NET WEIGHT 70 Pounds
SIZE 18x25x15 Inches

Gross weight packed for overseas shipment.

120 Pounds 20x28x18 Inches

TRAINING COURSES

During the last war, the McElroy Corporation trained thousands of operators in code and automatic telegraphy. This service is still available to interested entities. The McElroy course for slip reading is still a standard in instruction. Also available are complete code charts of every existing code.

These courses are available by mail at a nominal charge, and have been translated into as many as twenty-five different languages. Request for complete details will be promptly answered. Address inquiries to McElroy Manufacturing Corporation, 453 West 47th Street, New York 19, N. Y.

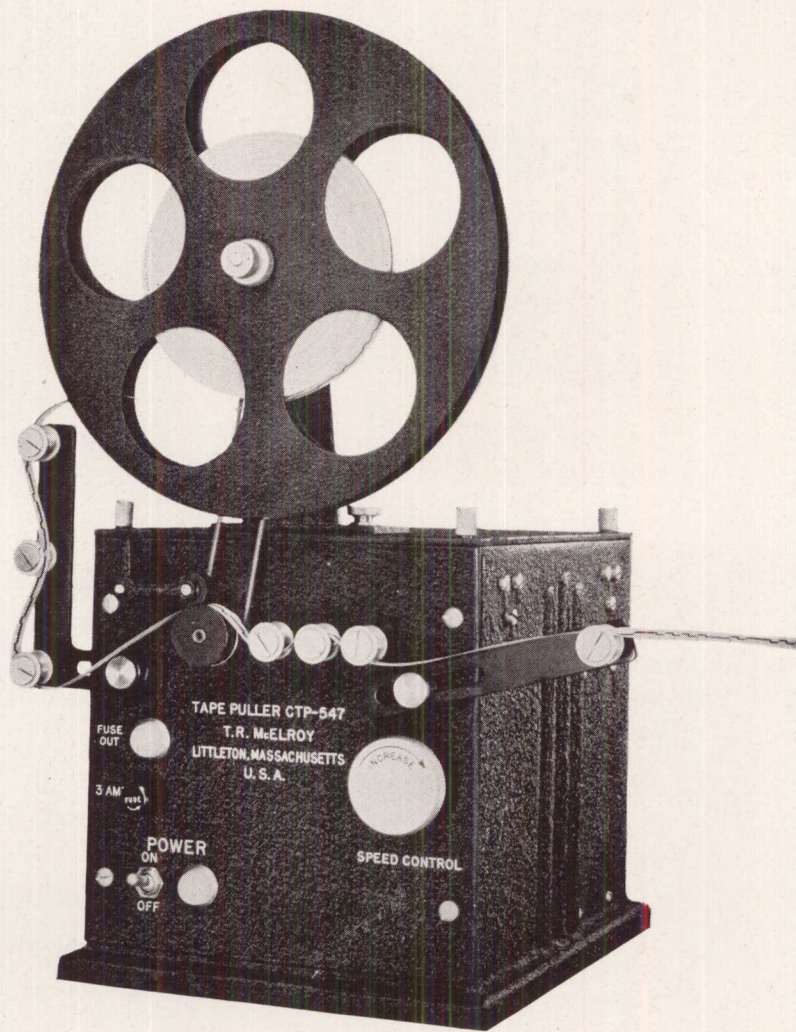
McELROY TAPE PULLER

Type CTP

**A FUNDAMENTAL PRINCIPLE
OF MECHANICS IS USED
IN THE McELROY
TAPE PULLER TYPE CTP**

The result is a tape-drive mechanism which is continuously adjustable over a wide speed range, and what is more important, maintains unvarying speed at any given setting. This is particularly important when receiving teletype impulses at two or more times base speed. A Strobotac will show no variation in speed at any calibrated setting. Similarly no variation in speed is apparent with loads up to 15 times sufficient to break the tape normally used with the equipment. The rate of pulling is accurate to better than 1%.

This precise functioning of the CTP is due to a unique mechanical linkage between the drive motor and the tape drive shaft, which causes the load demand on the tape drive shaft to be transmitted instantly to the motor. The friction actually increases with load, and a spring releases the mechanism



when it stops to prevent flats on the drive wheel.

Friction materials are specially selected for wear, and should wear occur, provision is made for rapid replacement. Rewind reel is included as standard equipment with this unit.

OPERATING POWER

110/117 Volts • Single Phase • 50/60 Cycles

Also available for 220 volt operation

WEIGHT AND DIMENSIONS

NET WEIGHT..... 22 Pounds

SIZE..... 18x14x15 Inches

Gross weight packed for overseas shipment 35 lbs. Size: 18x14x15 inches

McELROY STANDARD A-C DRIVE

Type VSD

As used in the CTP, AHD, ADK, RPC, RAPC

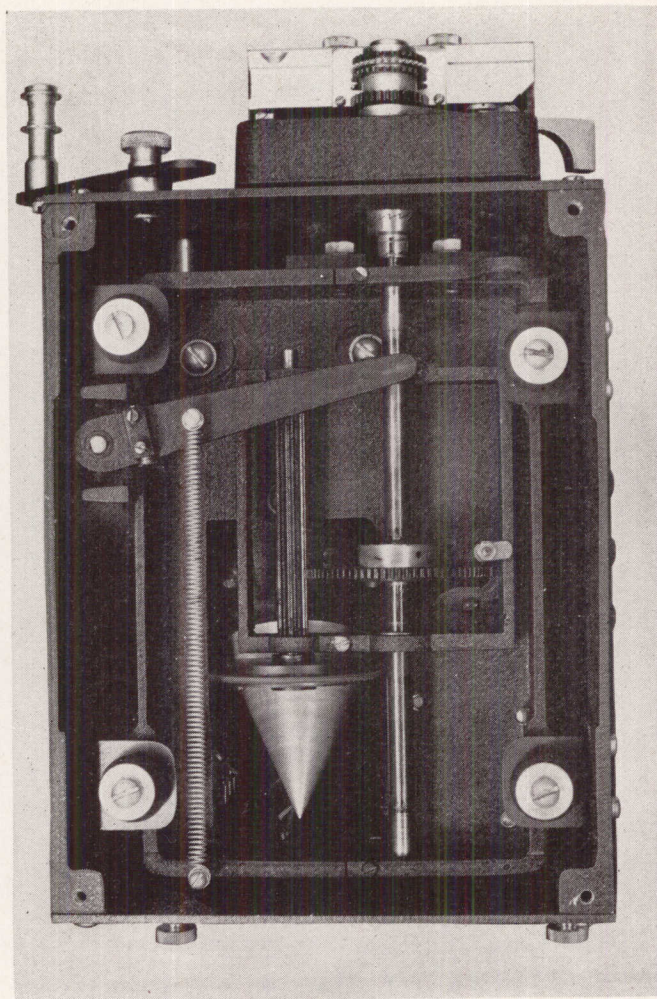
The friction disc, which is in contact with the cone on the motor shaft when the unit is in operation, is on a pinion shaft. The pinion shaft is borne by a frame which pivots on the tape drive shaft. The pinion shaft meshes with the gear on the tape drive shaft. Thus, the power from the motor is transferred via the disc and pinion shaft to the drive shaft. When the load on the tape drive shaft is increased, the frame (because it is pivoted on the drive shaft) inclines toward the cone so that the pressure of the disc on the cone is increased.

When the speed control is turned by the operator, the pivoted frame (which is moved by the speed control and travels in a plane parallel to a side of the cone) allows the disc to make contact with the cone at any diameter on the cone—from close to the point to the widest diameter of the cone. When used as a puller, $\frac{3}{8}$ inch wide paper tape may be pulled at any speed from 1 ft. 5 in. to 70 ft. per minute. This is a ratio of 50:1, virtually 10 to 1000 words per minute. (The metric data for the machine is 43 cm per minute to 22.2 meters per minute.)

Cone and Disc contact was selected for power transfer from the motor to the drive mechanism after much experimental and development work with this and other methods. All other methods were unsatisfactory. Disc contact with a rotating plate caused scuffing of the disc rim. Disc contact with a cone reduced the scuffing to a negligible factor.

However, rigid contact between cone and disc made no allowance for the degree of coupling demanded by the load placed on the drive shaft and allowed no automatic adjustment of the degree of coupling to allow for wear and humidity. The frame counterpoised on the tape drive shaft and freely carrying the pinion shaft rotated by the disc solved the problems of the cone and disc operated drive mechanism, monitoring the cone to disc coupling in response to the combination of factors which set the cone to disc coupling requirements. Other methods of driving tape or operating automatic communications equipment, including gear trains are now rapidly becoming obsolete.

The disc structure consists of a flexible rubber base which provides needed resilience with a bonded rim



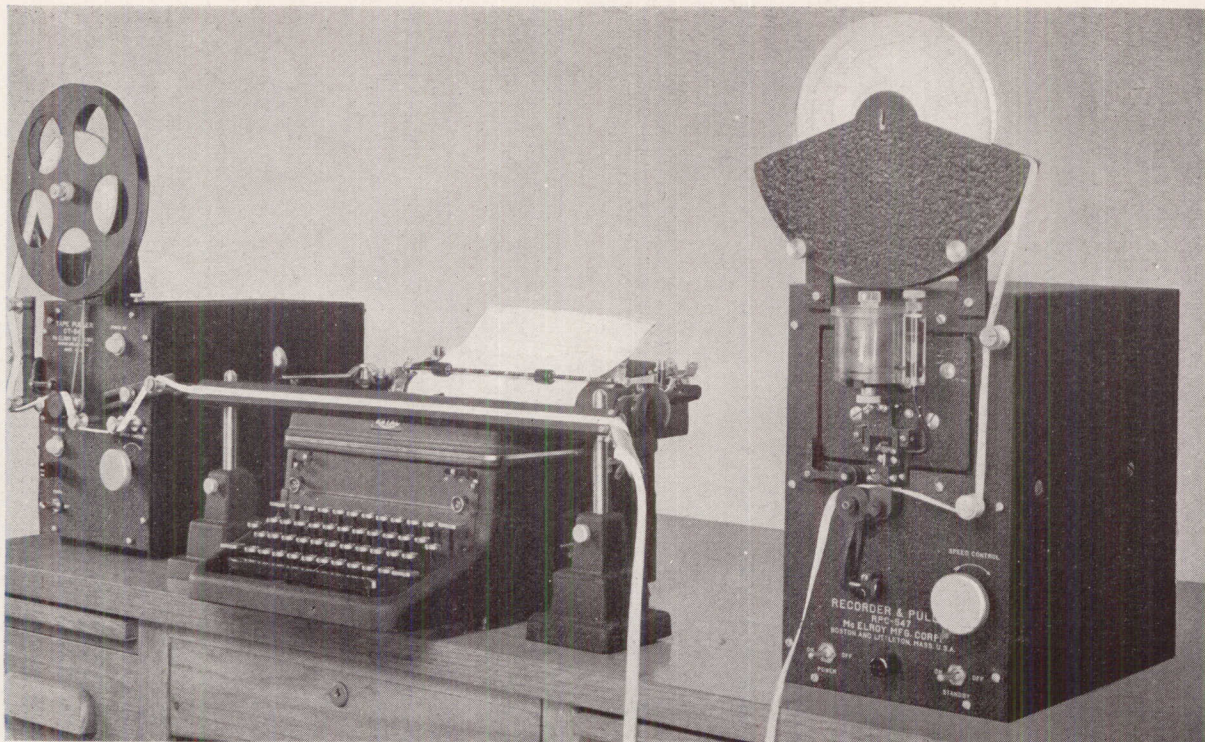
Showing the working parts of the McElroy standard drive.

of grainless sole material which has particularly good wearing qualities as well as providing for adequate friction contact with the cone. The disc is easily replaced.

When the power is turned off, a spring tilts the drive frame so that contact between the disc and cone is removed. The spring is overcome by a solenoid (energized by the operating power) when the drive power is turned on.

The drive is completely shock mounted. Inner surfaces of the housing are coated with flock, preventing transmission of sound to the housing. These provisions make the operation almost completely silent. Ball bearings, with sealed in lubricants, are provided for all bearings. No oiling or greasing is required for the life of the unit.

McElroy Assembly for high speed recording (*sight transcription*)



Units shown, left to right, type CTP puller, TG tape bridge (communications type typewriter), and combined recorder and puller type RPC. Not shown, but a part of the system are the RDA amplifier and type MRAT table and OPC operators posture chair.

OPERATION: The recorder is connected to the source of intelligence (radio receiver, tone line, etc.) and the puller set in operation. The incoming signal can be at any speed within the range of the puller and recorder (RPC) and perfect slip will be made if the signal is satisfactory. This tape is normally stored in a tape bin for transcription at lower speeds. When transcribed, visually, the CTP pulls the tape out of the bin across the tape bridge (TG) at speeds suitable for transcription. If desired, tape may be broken and a number of transcribing operators used.

This system is particularly designed for simplicity in operation, and has all the advantages of the

McElroy pulse method of recording. Ink cannot splash or drip into the recording mechanism or into the recording coil. The pen works on a horizontal plane and the end of the pen is always below the level of the recording mechanism. The ink supply level in the recorder is visible. The tape is self-centering and easily replaced. The tape guide is anti-glare, making for ease in transcription, and the speed of the tape is always under control.

Where manual operating speed only is required, Type REC recorder may be substituted for type RPC. The REC has no built in puller, and as a consequence the tape is pulled directly across the bridge with no storage.

McELROY SCANNERS

The McElroy Corp. are the originators of Scanners for telegraphic use

The McElroy Manufacturing Corporation has been making scanners for many years. Currently Types PTR photoelectric, and COR resistance scanners are undergoing improvement in the McElroy laboratory. These scanners are available on special order.

Type PTR will scan inked tape for morse or tele-

type reproduction and will provide tone, 60 ma neutral DC (on-off), 30 ma polar DC or DC output. Special outputs may be provided on request. Type COR will provide the same outputs, but utilizes the resistance type of scanning. In both units either mark or space may be scanned.

McElroy Differentiating Amplifier . . . Type RDA



The McElroy type RDA differentiating amplifier is available for use with any existing equipment and for replacement where a separate amplifier is required. This unit accepts tone, frequency shift or teletype from a radio receiver or line and produces sharply peaked pulses to drive an inked recorder such as the REC at speeds up to 1500 words per minute.

Perforators . . .

The McElroy standard Wheatstone perforator is now in production in greatly improved form. Small and compact, this unit is particularly desirable for use on shipboard where space is at a premium. For those desiring a full keyboard perforator we recommend the Kleinschmidt perforator which the McElroy Corporation will be glad to supply.

Accessories . . .

The McElroy Corporation provides a complete service to those engaged in automatic telegraphy. Such items as teletype and Wheatstone tape, undulator slip, ink and other accessories are readily available.

Spare Parts . . .

Millions of dollars worth of McElroy equipment is now in the field, and the small quantity of replacement parts we have been required to ship is ample testimony of the enduring character of the equipment. When you need spare parts we will attempt to ship promptly and at the lowest cost possible consistent with good business.

SYSTEMS . . . McELROY engineers will gladly quote on complete systems for high speed communications, for reception and transmission of frequency shift, on-off telegraphy, teletype and facsimile

McELROY AMPLIFIER Type RVK

The McElroy type RVK amplifier is designed to accept the output of the HED Wheatstone head, and produce variable voltage (0-200 volts), either during the mark or space period. A relay is provided for

keying at less than 100 words per minute, and tone output is also available. In other words, the RVK provides a complete vacuum tube keyer for use with existing transmitters.

executive offices Littleton, Mass.

call Littleton 250

sales offices

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McELROY MANUFACTURING CORPORATION
LITTLETON, MASS.