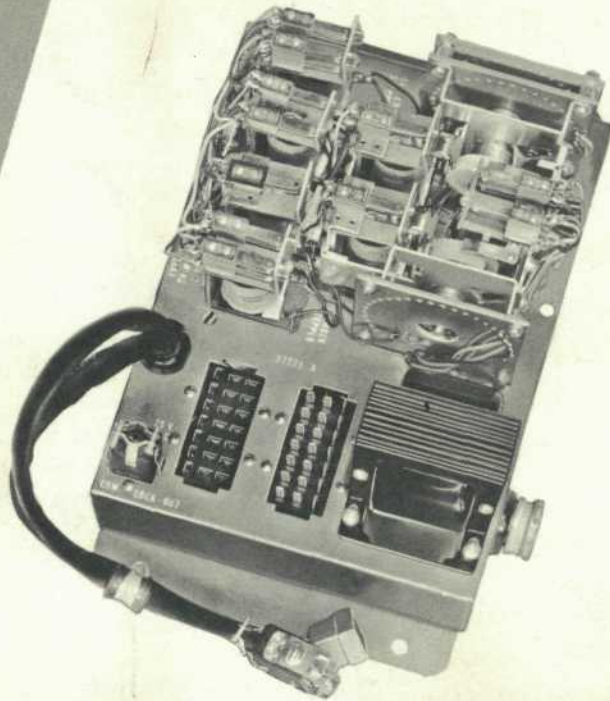


ROCK-OLA



**SERVICE MANUAL and PARTS LIST**

*Model 1754*  
**(100 SELECTION)**

**RECEIVER  
UNIT**

**ROCK-OLA MANUFACTURING CORPORATION**

800 N. KEDZIE AVE., CHICAGO 51, ILL.

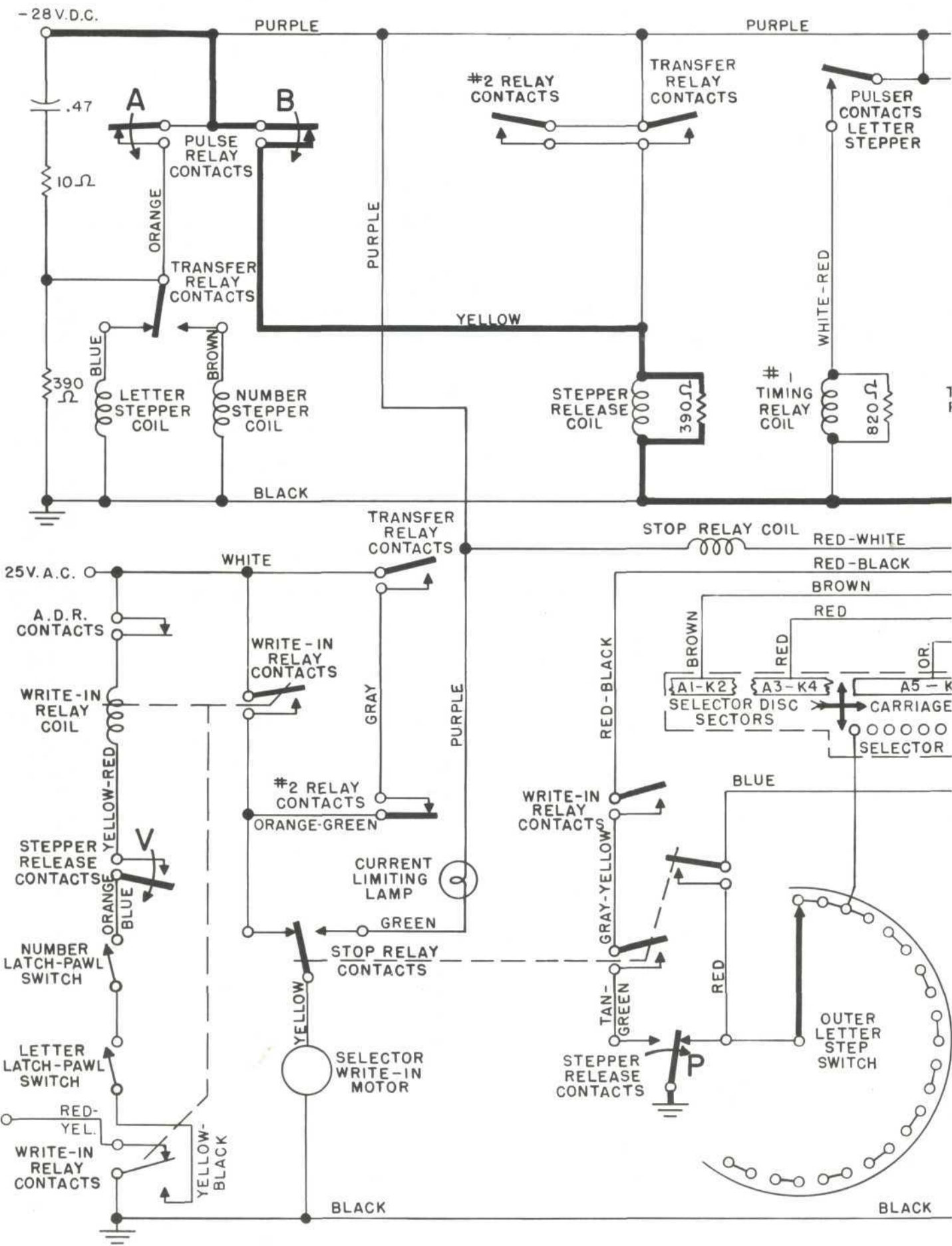
## GENERAL INFORMATION

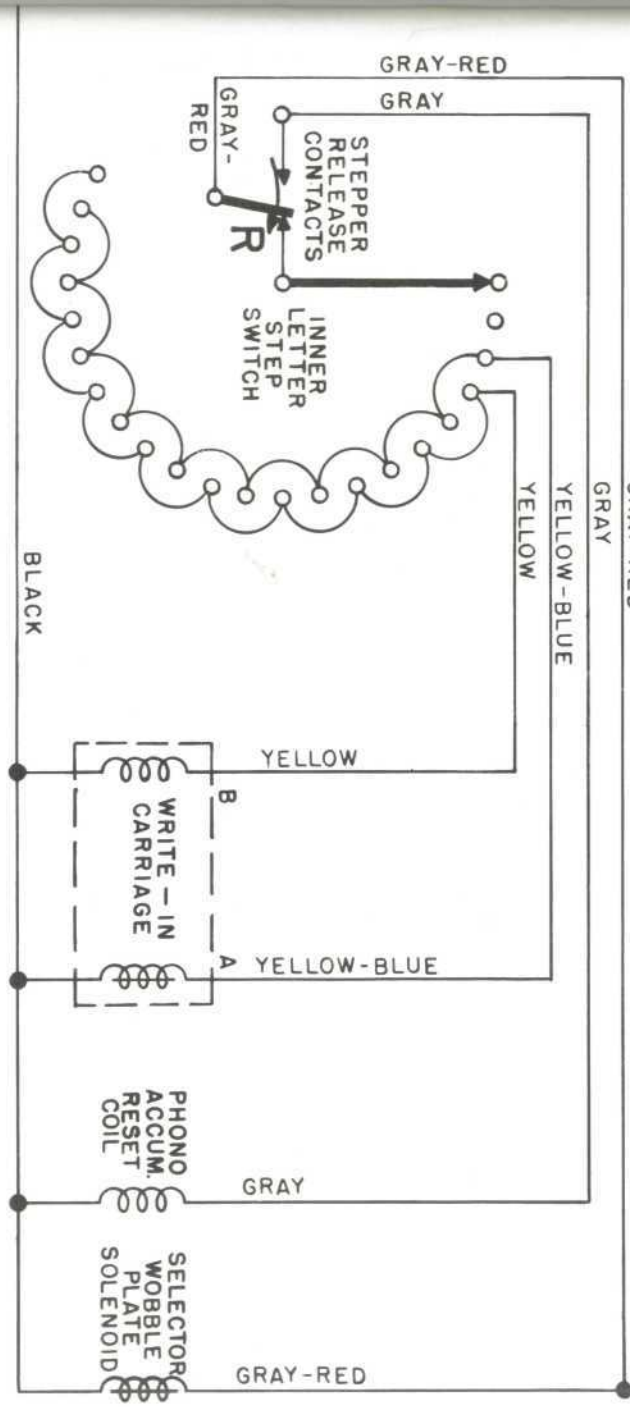
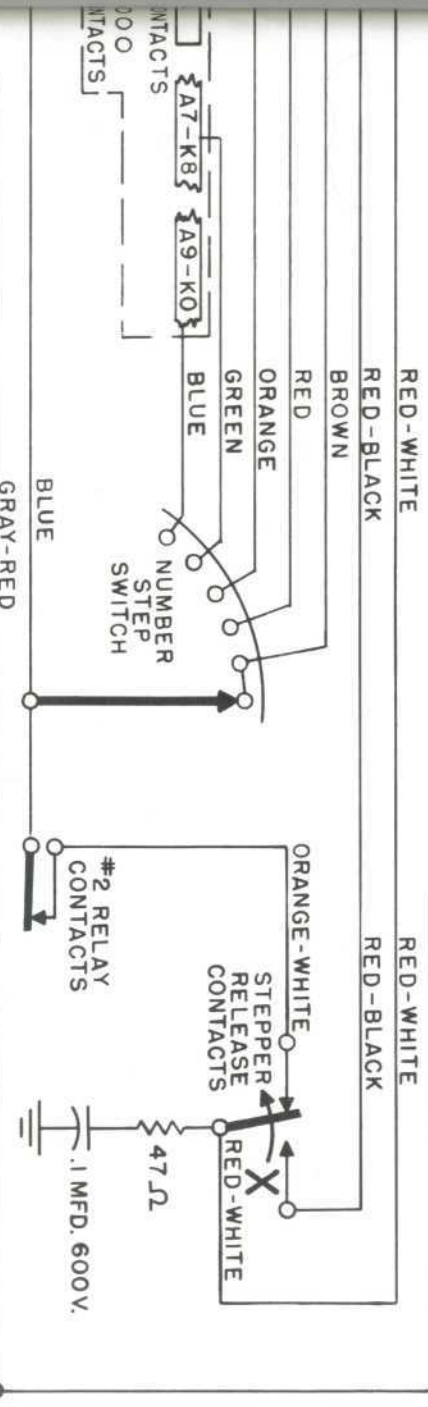
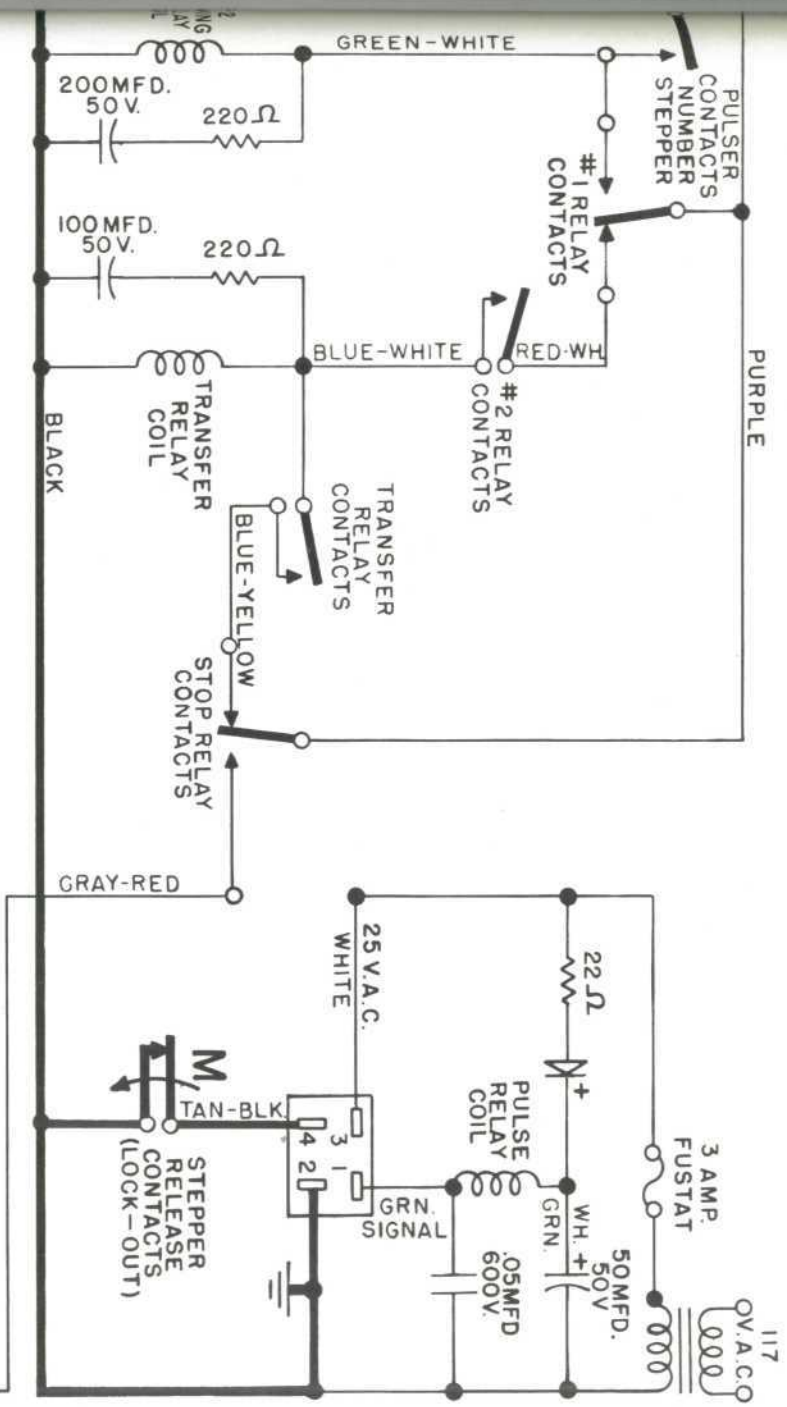
When a selection is made at the wall box, the wall box motor rotates a wiper arm one revolution over a contact disc, causing intermittent grounding of the signal line to actuate the "Repeat" relay in the receiver. The grounding pulses occur in two pulse trains, separated by a 200 millisecond time interval. The number of pulses in the first train is determined by the wall box push-button that is depressed, and the number of pulses in the second train is determined by the position of the program "pages" or "leaves". In the normal position of the receiver (no active wall box) all relays are in their relaxed positions and the "outer" and "inner" Letter step switch and the Number step switch arms are in the "home" positions. For a better understanding of the receiver operation, this manual consists of a series of sequence diagrams that explain the electrical functions in detail.

OPERATION SEQUENCE No. 1

**SELECTION MADE • RECEIVER RECEIVES FIRST PULSE**

1. The Repeat relay energizes, closing contacts "A" & "B".
2. Minus 28 V.D.C. current flows thru "B", energizing the Release magnet coil, and allows the detent pawls to engage the nylon ratchet gears on both the Letter and Number stepper units.
3. The Release magnet coil contacts "P" "R" "V" and "X" transfer preparing selection circuits to the phonograph selector from the wall box only. These contacts provide a priority switching arrangement to eliminate interaction between wall box selections and phonograph selections. If a selection is made at the phonograph and a simultaneous wall box selection is entered, the circuits to the selector from the phonograph are interrupted and held until completion of the wall box selection sequence. Once the selection from the wall box has been registered, the release magnet coil relaxes and the phonograph selection cycle then continues.
4. Release magnet coil also closes contact "M", completing a circuit to every wall box Lock-out relay in the system. This condition "holds" all wall box selections in abeyance, except the wall box that is being operated, until the receiver has completed its cycle.

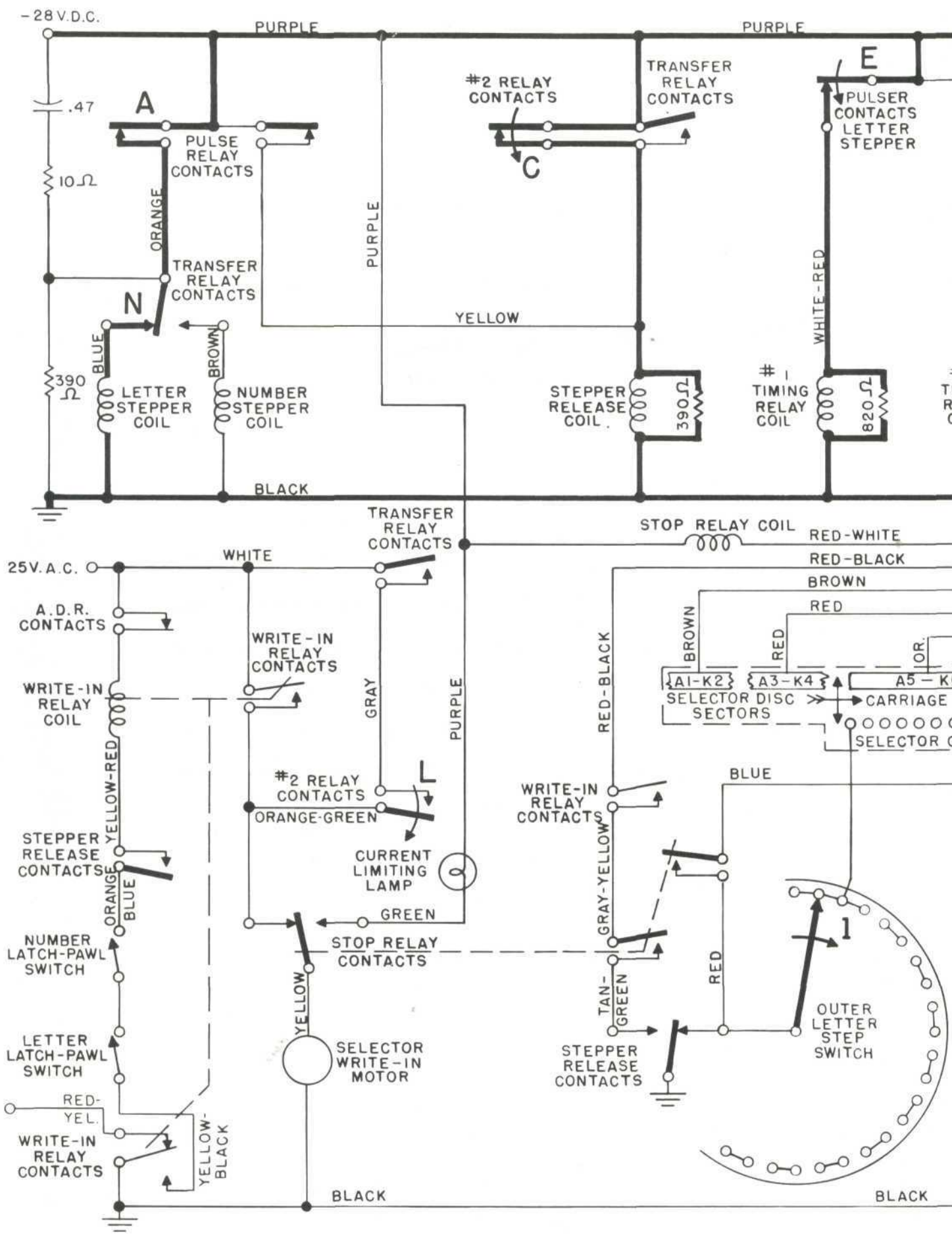


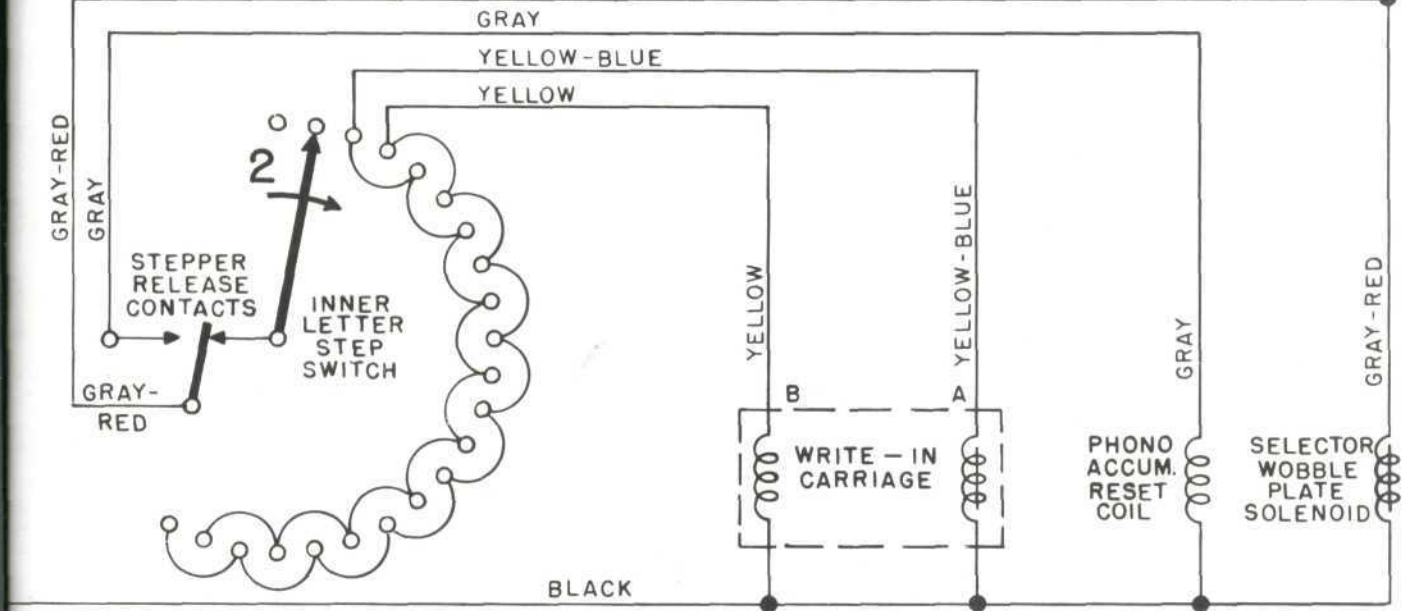
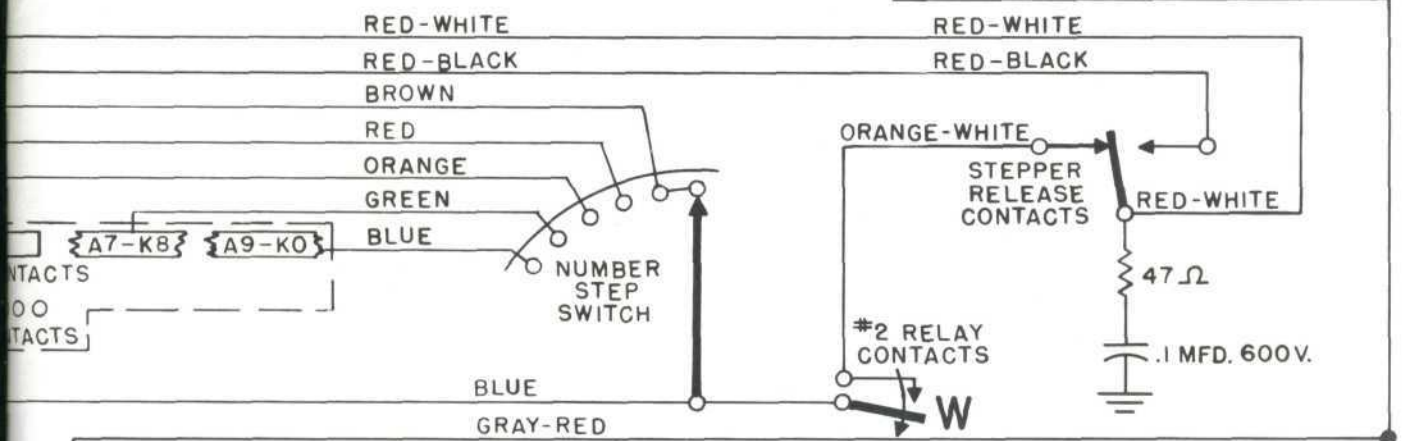
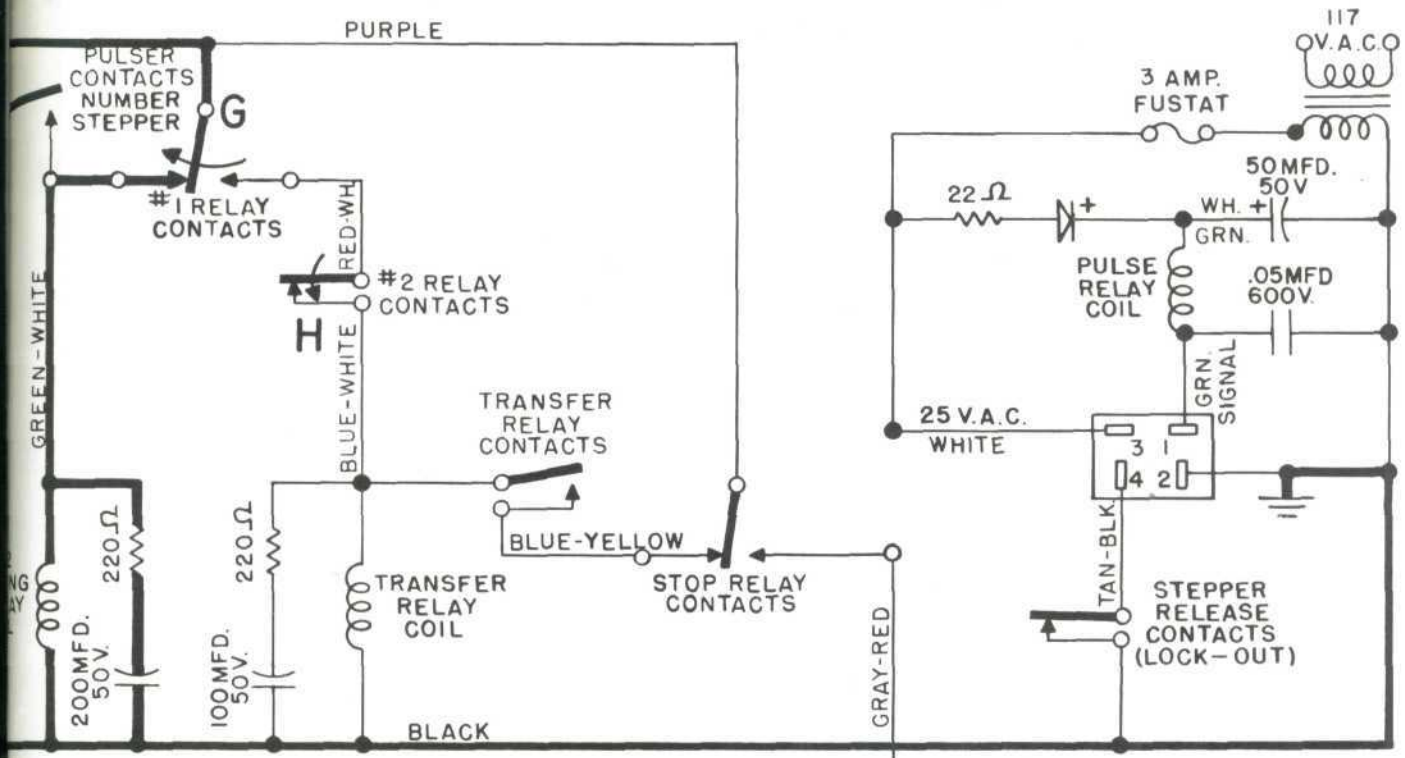


*OPERATION SEQUENCE No. 2*

**LETTER STEP SWITCH ARMS ADVANCED •  
No. 1 AND No. 2 TIMING RELAYS ENERGIZE**

1. During the signal pulse, current flows thru "A", thru the back contact "N" of the Transfer relay and energizes the Letter stepper coil causing both the "outer" and "inner" step switch arms Nos. 1 and 2 to advance one position.
2. As the Letter stepper armature begins to move toward the pole-piece of the coil, contact "E" closes, thereby energizing Timing relay #1.
3. In energizing, T relay #1 closes contact "G", and energizing Timing relay #2, closing contacts "C" and "H", and opening contacts "L" and "W". Contact "C", provides a holding circuit to the Release magnet coil and contact "H", prepares a circuit to the Transfer relay. Opening contacts "L" and "W" break the write-in motor and selector circuits during the period the Letter and Number step switch arms are being advanced by the wall box pulses.





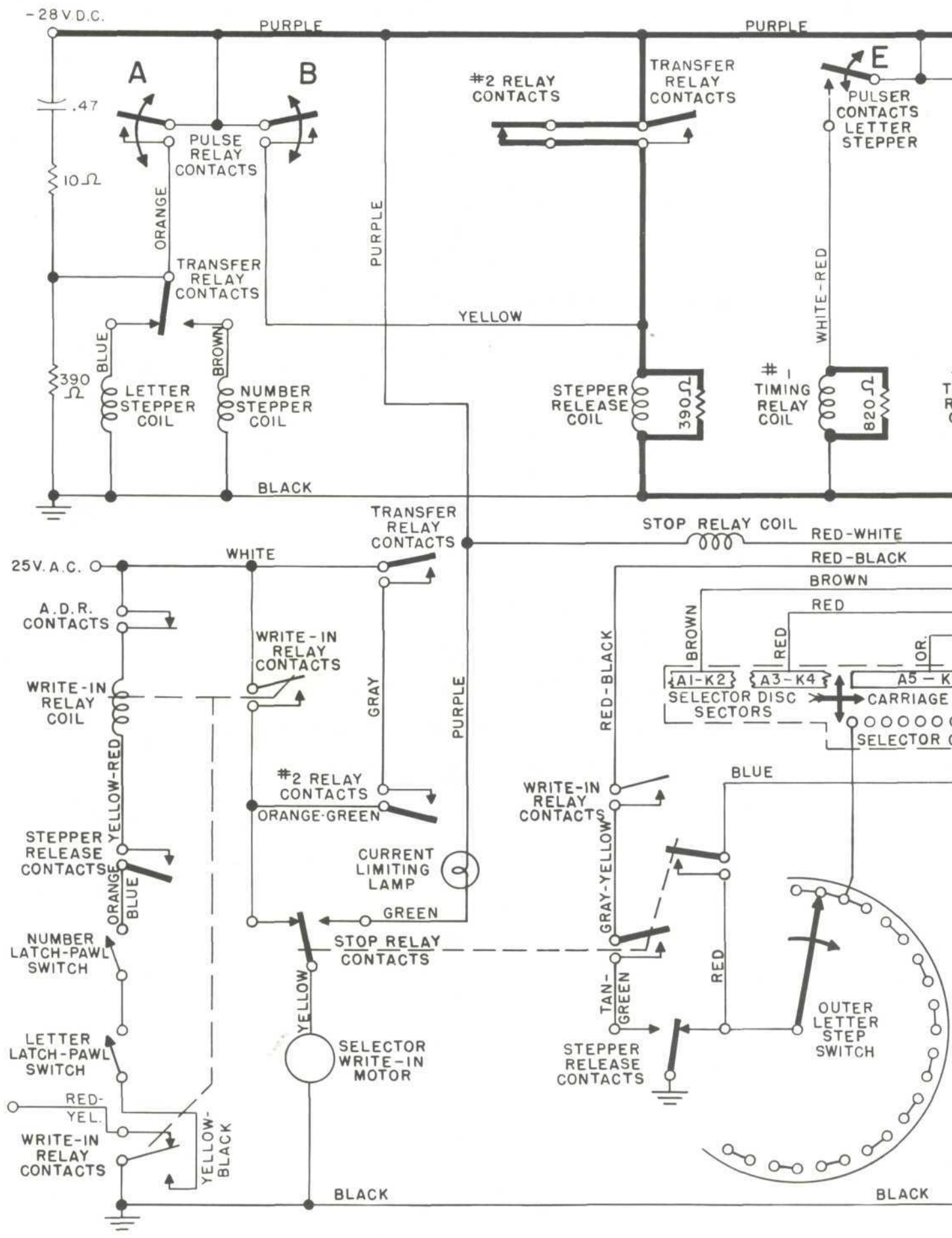


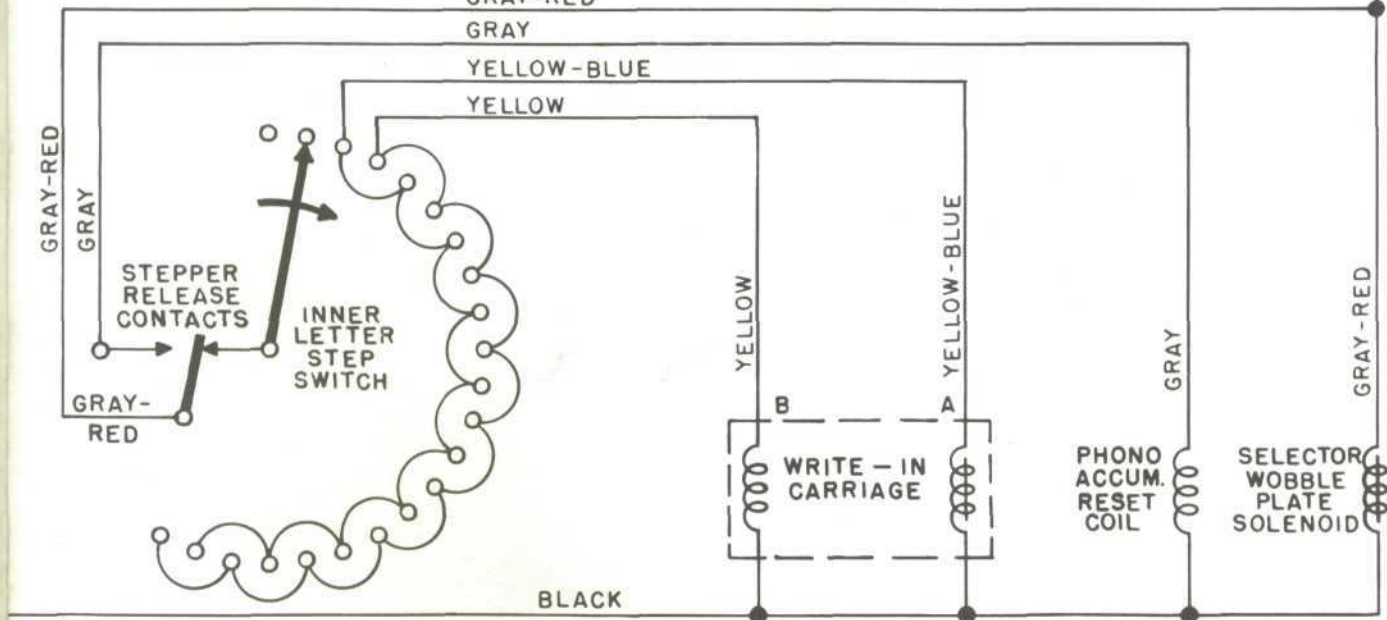
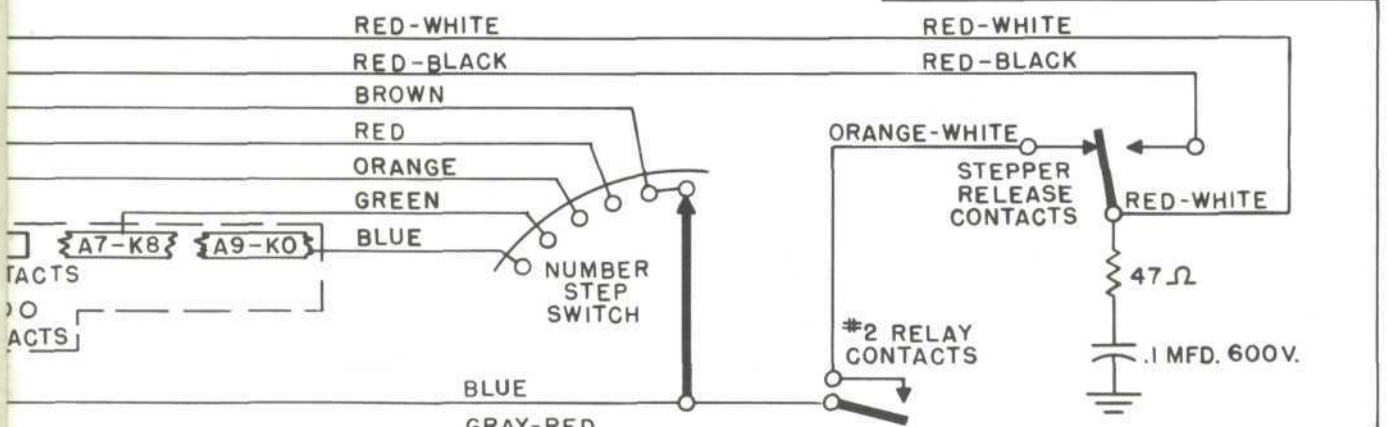
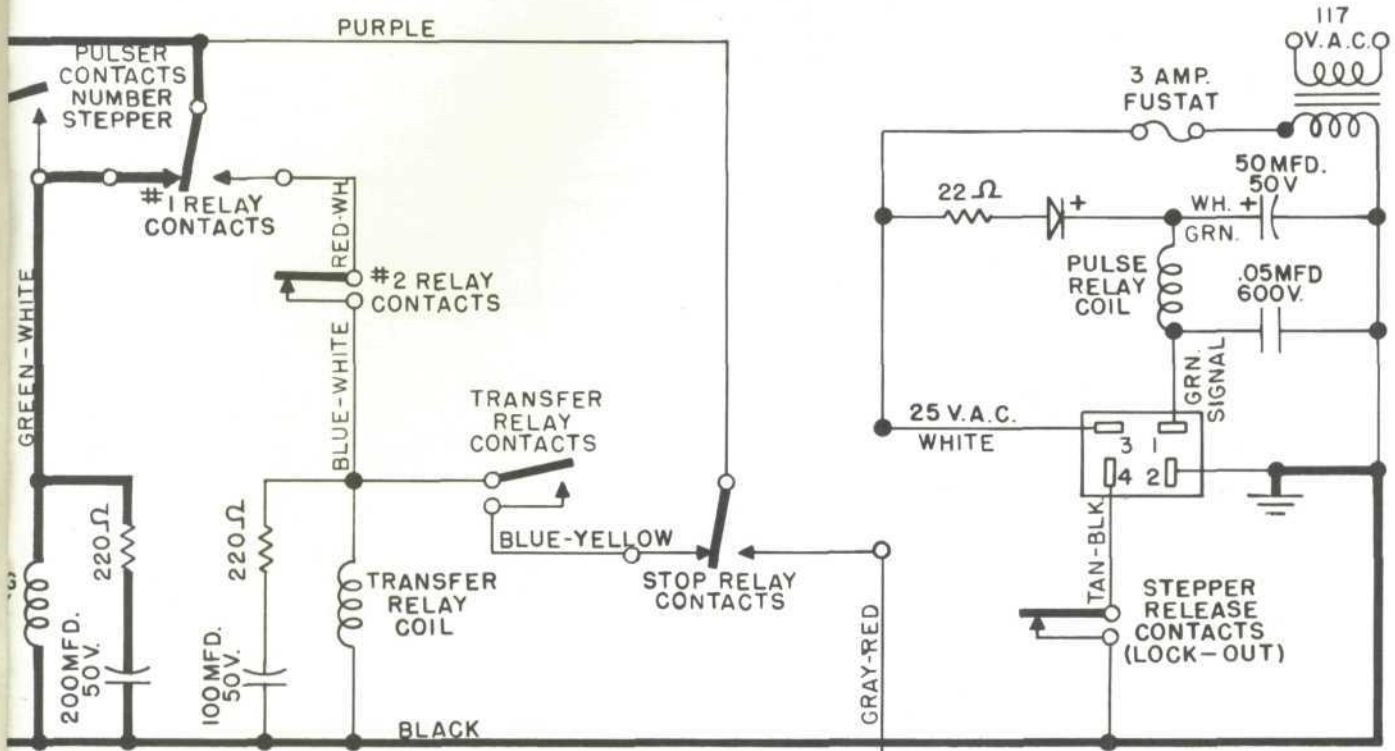
**OPERATION SEQUENCE No. 3**  
**END OF FIRST PULSE**

AT THE END OF THE FIRST PULSE, THE FOLLOWING OCCURS:

1. The Repeat relay relaxes, opening contacts "A" and "B".
2. The opening of "A" removes coil power from the Letter stepper coil. T relay #1 has delayed characteristics and will remain in the energized position for a considerable period after the 1st pulse ceases. Before it can release, the next pulse operates the Repeat relay which energizes the Letter step coil thru contact "A" and re-energizes T relay #1 thru the closing of contact "E".

THUS, FOR ALL SUCCEEDING PULSES IN THE FIRST TRAIN, THE FOLLOWING CONDITIONS PREVAIL:

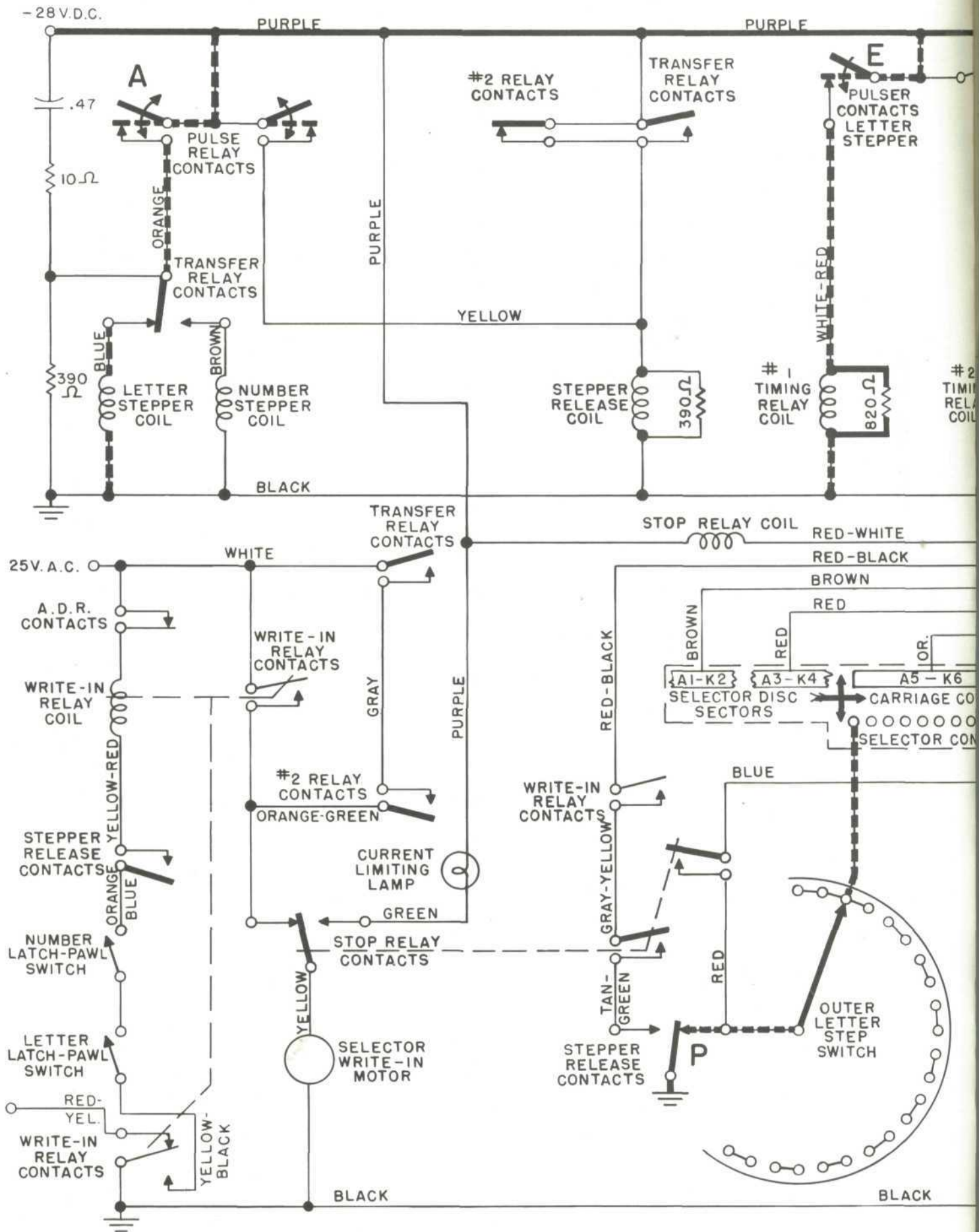


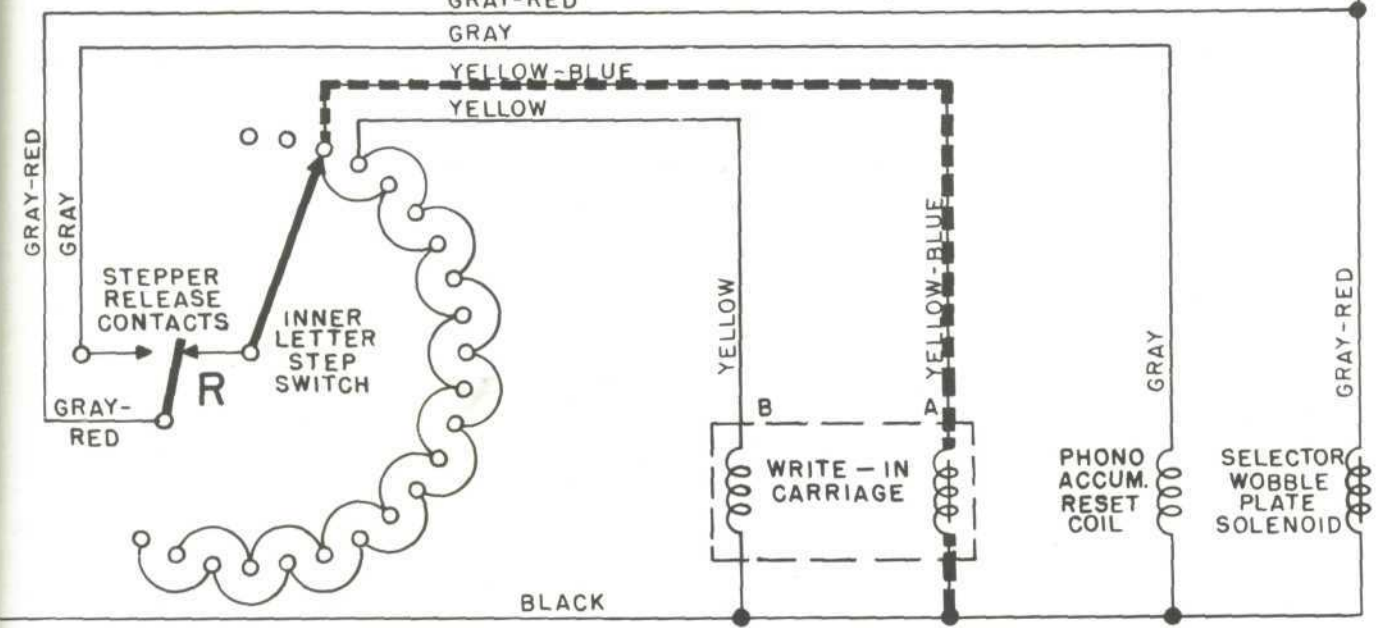
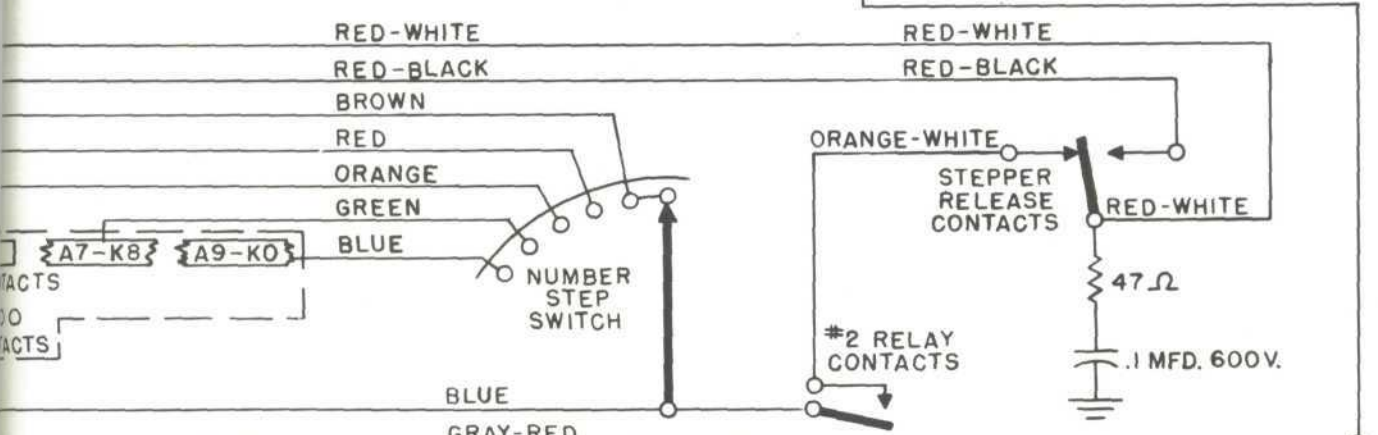
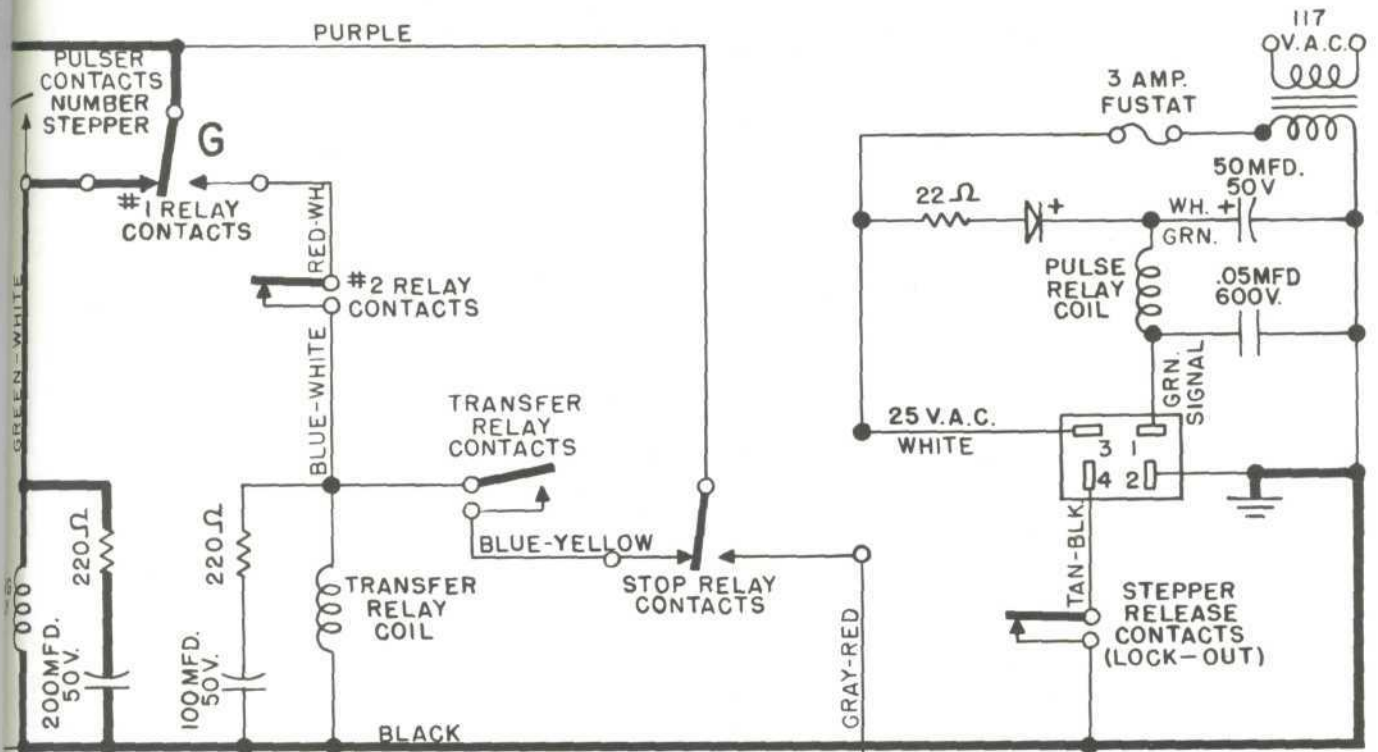


*OPERATION SEQUENCE No. 4*

**LETTER STEP SWITCH SEQUENCE COMPLETED**

1. The Repeat relay operates for each pulse keyed by the wall box wiper blade.
2. The intermittent operation of contact "A" steps the "inner" and "outer" Letter step switch the same number of times as there are pulses. UPON COMPLETION OF THESE FIRST PULSES, THE "OUTER" STEP SWITCH ARM WILL CONNECT A CIRCUIT TO ONE OF THE SELECTOR RIVET CONTACTS THRU FORWARD CONTACT "P". THE "INNER" STEP SWITCH ARM THRU FORWARD CONTACT "R", WILL CONNECT A CIRCUIT TO THE PROPER WRITE-IN CARRIAGE SOLENOID.
3. The intermittent operation of pulser contact "E" keeps T relay #1 in the energized position throughout the entire 1st pulse train.
4. T relay #2 remains energized thru the forward contact "G" throughout the entire 1st train.





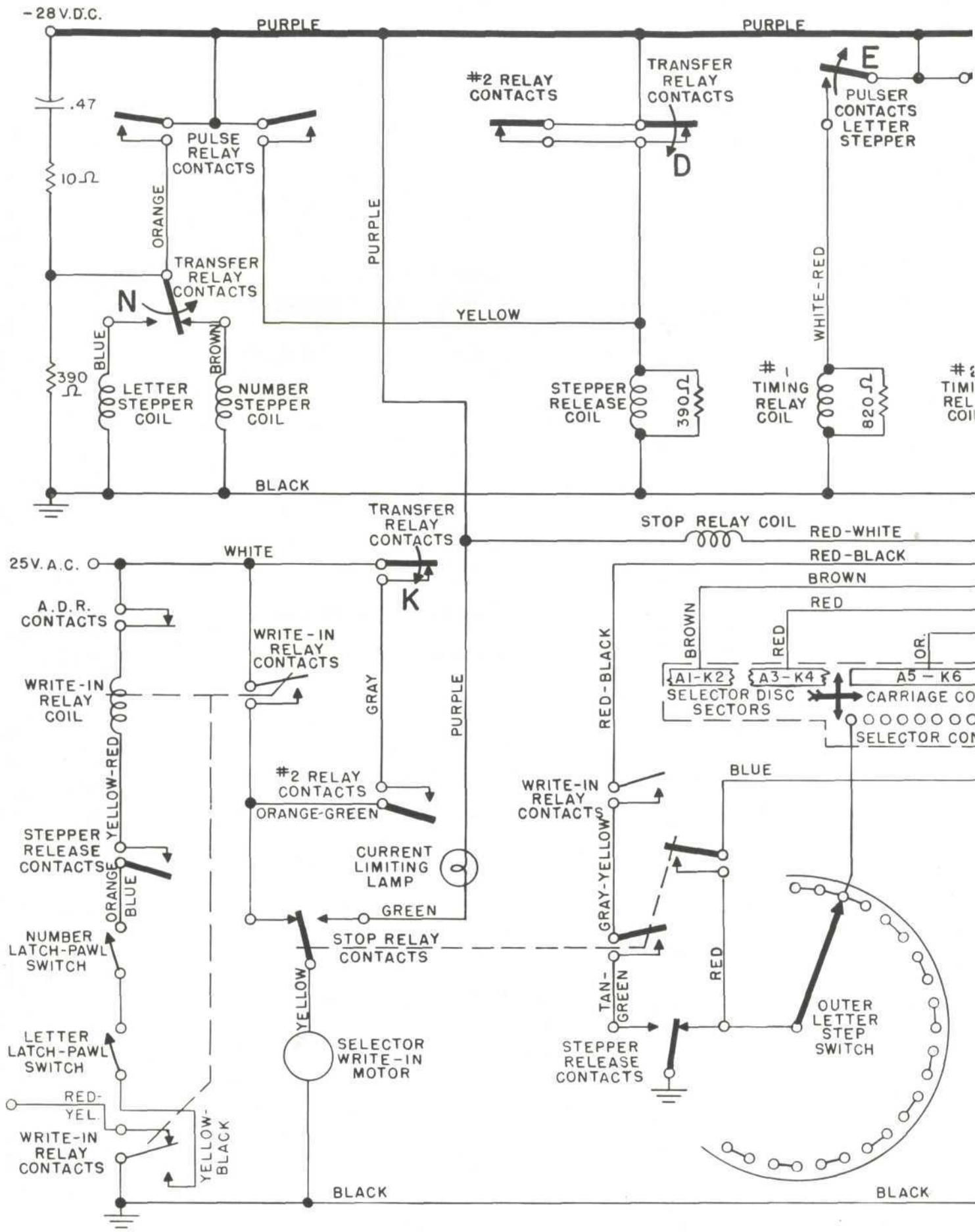
**OPERATION SEQUENCE No. 5****FIRST TRAIN PULSE COMPLETED • No. 1 TIME  
DELAY RELAY RELAXES**

The 200 millisecond interval between the 1st and 2nd train is great enough so that the open pulser contact "E" on the Letter stepper coil, allows the T relay #1 to relax. However, T relay #2 receives its coil power thru contact "G" on T relay #1, thus its delay interval does not begin until after contact "G" opens. This addition of time delays of the two relays is sufficiently long for Trelay #2 to remain in the energized position over the entire interval between the two pulse trains.

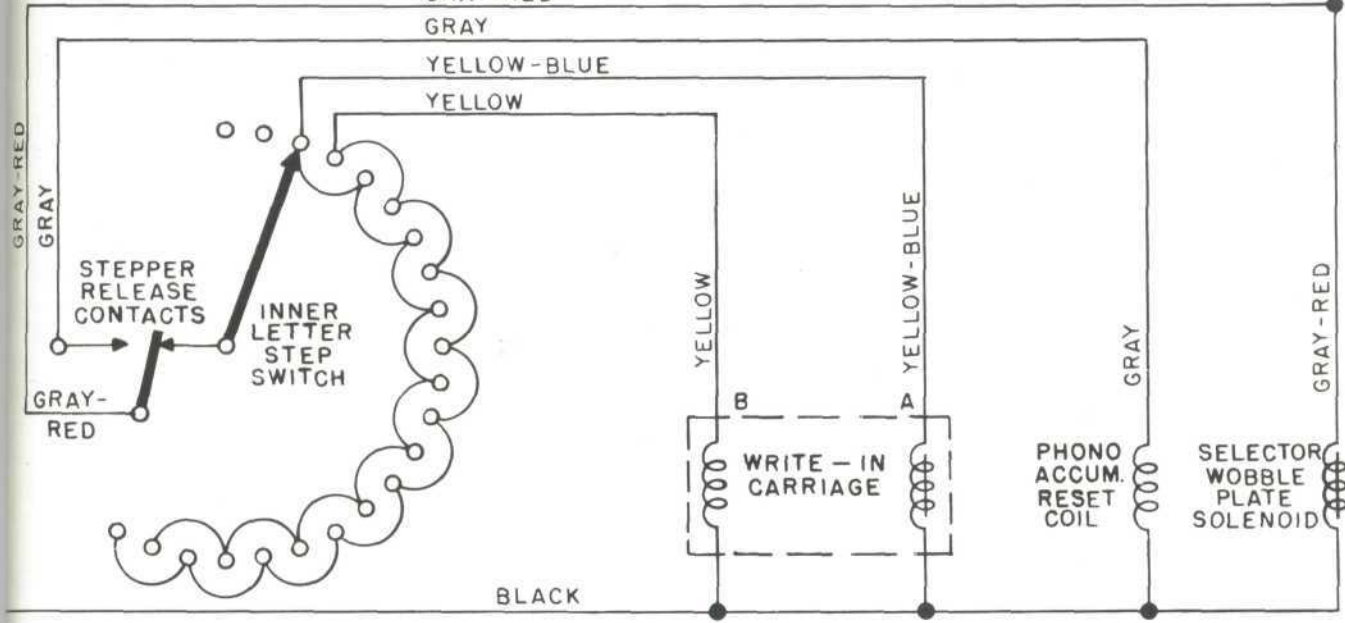
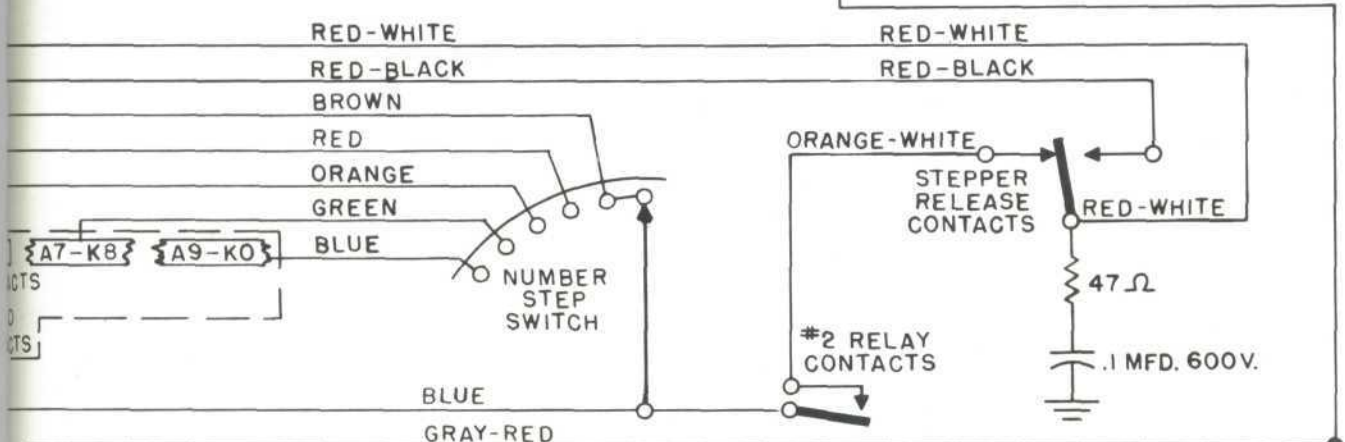
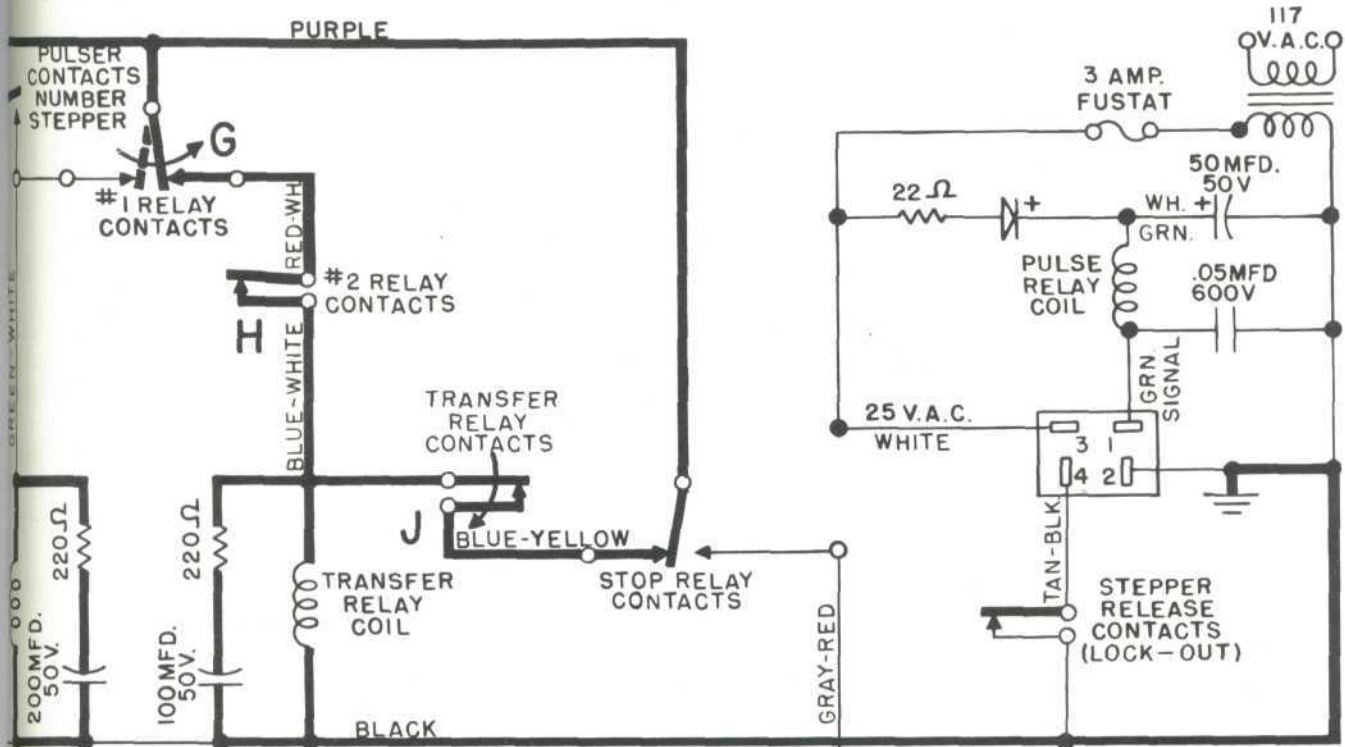
The next action to occur therefore is:

1. T relay #1 relaxes, closing back contact "G".
2. Since T relay #2 has a delayed release, current flows thru contact "G" and "H" energizes the transfer relay.
3. Transfer relay contact "N" moves to the forward position, and contacts "D" "J" and "K" close.

THE ABOVE STEPS ALL OCCUR IN THE INTERVAL BETWEEN THE PULSE TRAINS AND NO FURTHER ACTION ENSUES UNTIL THE 1ST PULSE IN THE SECOND TRAIN OCCURS.







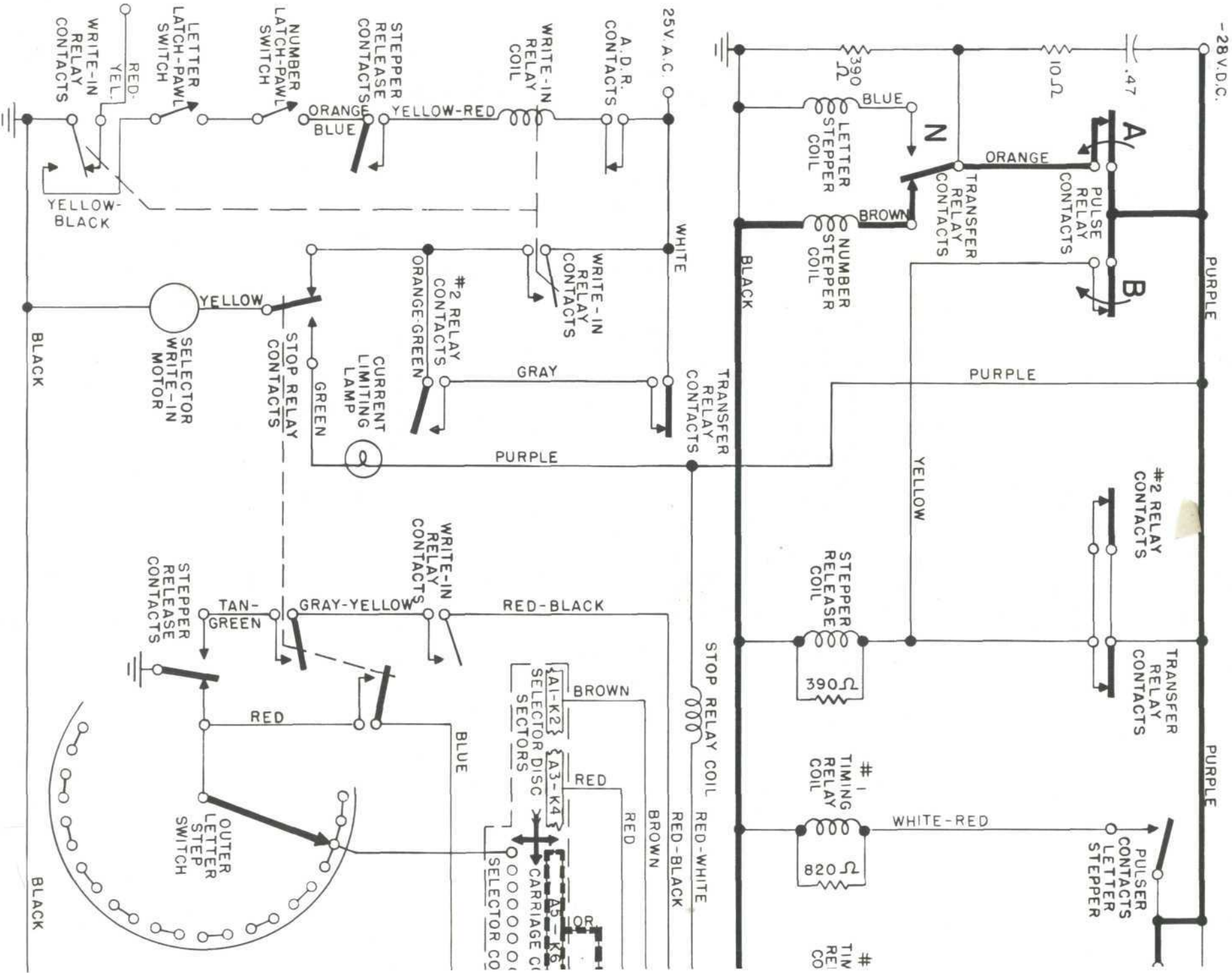
*OPERATION SEQUENCE No. 6*

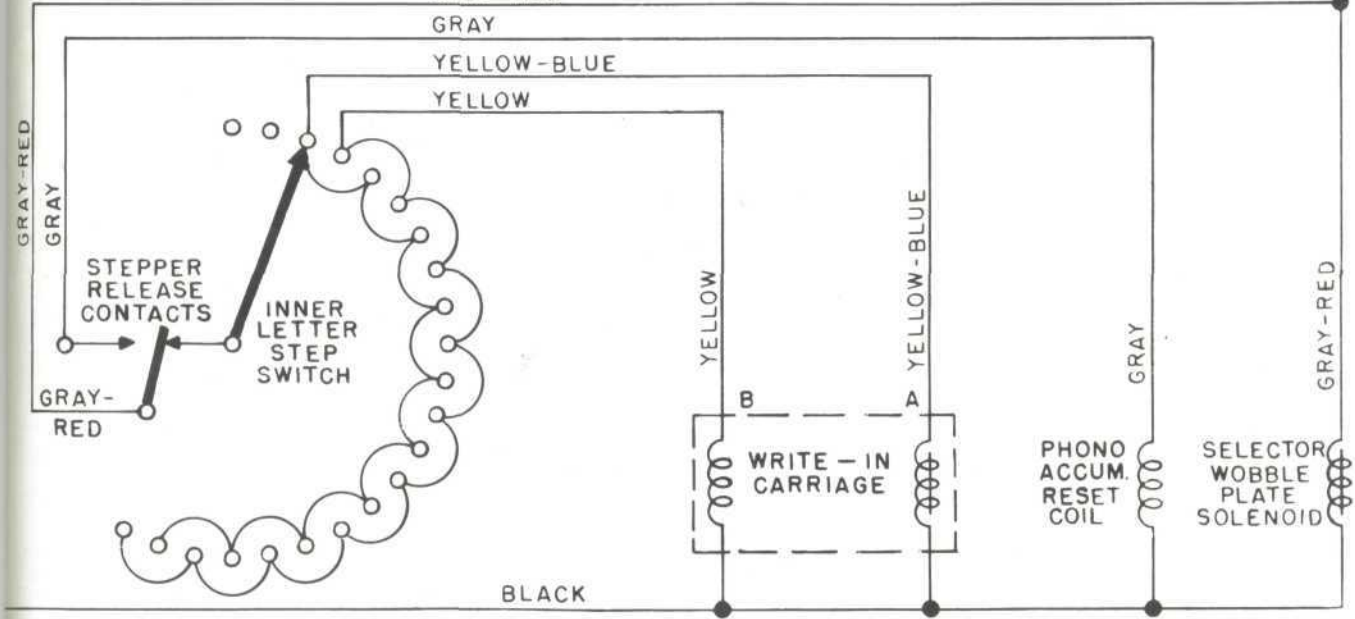
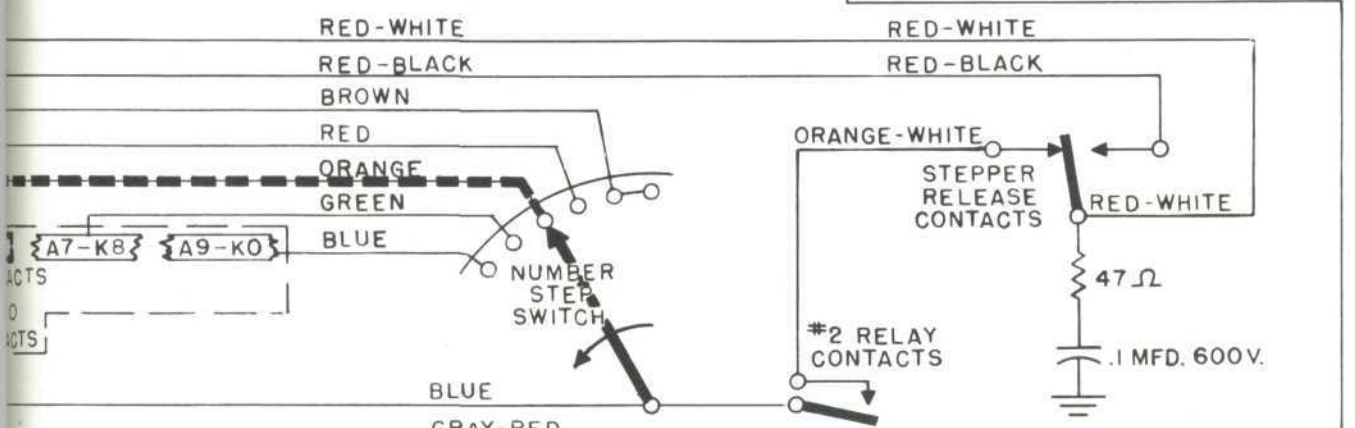
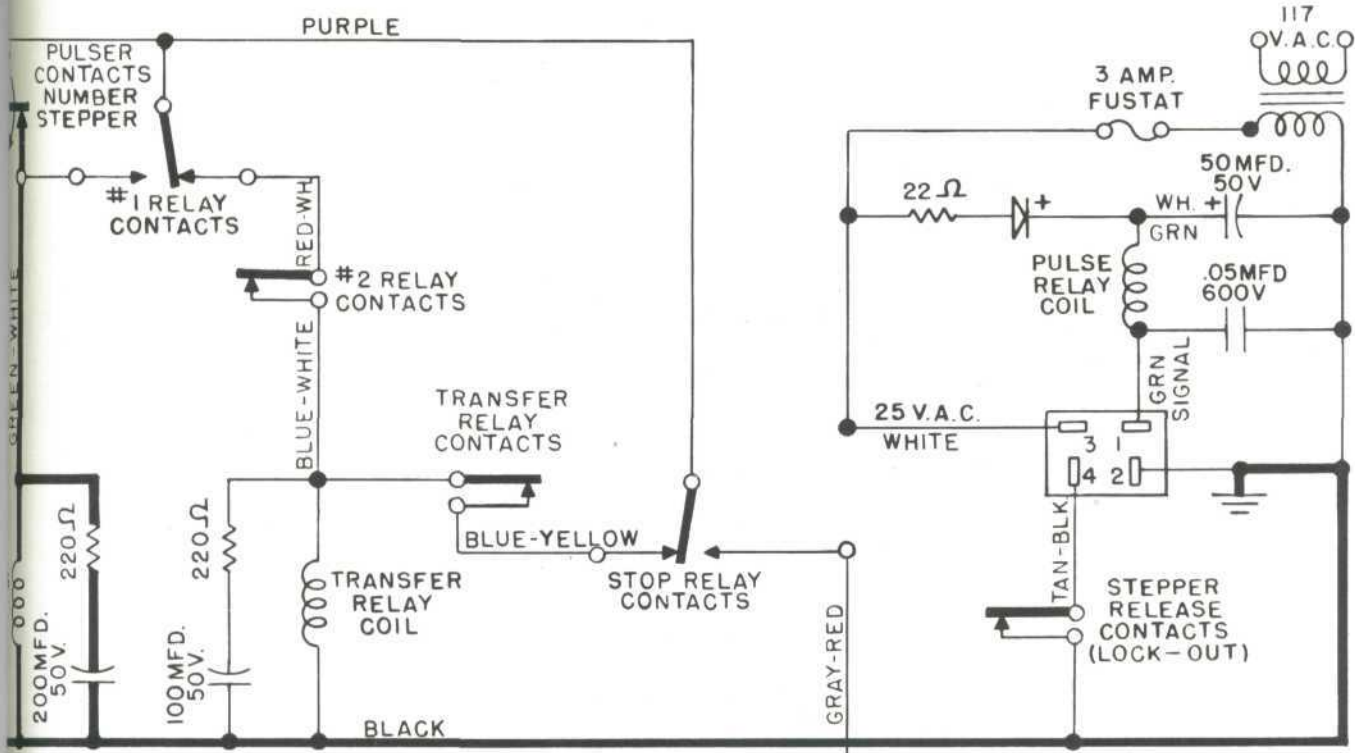
**RECEIVER RECEIVES SECOND TRAIN OF PULSES**

THE 1ST PULSE IN THE 2ND TRAIN CAUSES THE FOLLOWING TO TAKE PLACE:

1. Contacts "A" and "B" close.
2. Current flows thru "A" and the forward contact of "N" and energizes the Number stepper coil, causing the Number stepper to advance one position.
3. The Number stepper pulser contact "F" closes, re-energizing T relay #2, thus keeping it in closed position.

THE ABOVE STEPS 1 THRU 3 CONTINUE FOR AS MANY PULSES AS THERE ARE IN THE 2ND TRAIN. THE NUMBER OF THESE PULSES, AS PREVIOUSLY STATED, IS DETERMINED BY THE POSITION OF THE WALL BOX PROGRAM PAGES, AND MAY BE ANY NUMBER FROM 1 TO 5. THE POSITION OF THE NUMBER STEP SWITCH ARM COMPLETES A CIRCUIT TO ONE OF THE FIVE SECTORS ON THE SELECTOR.



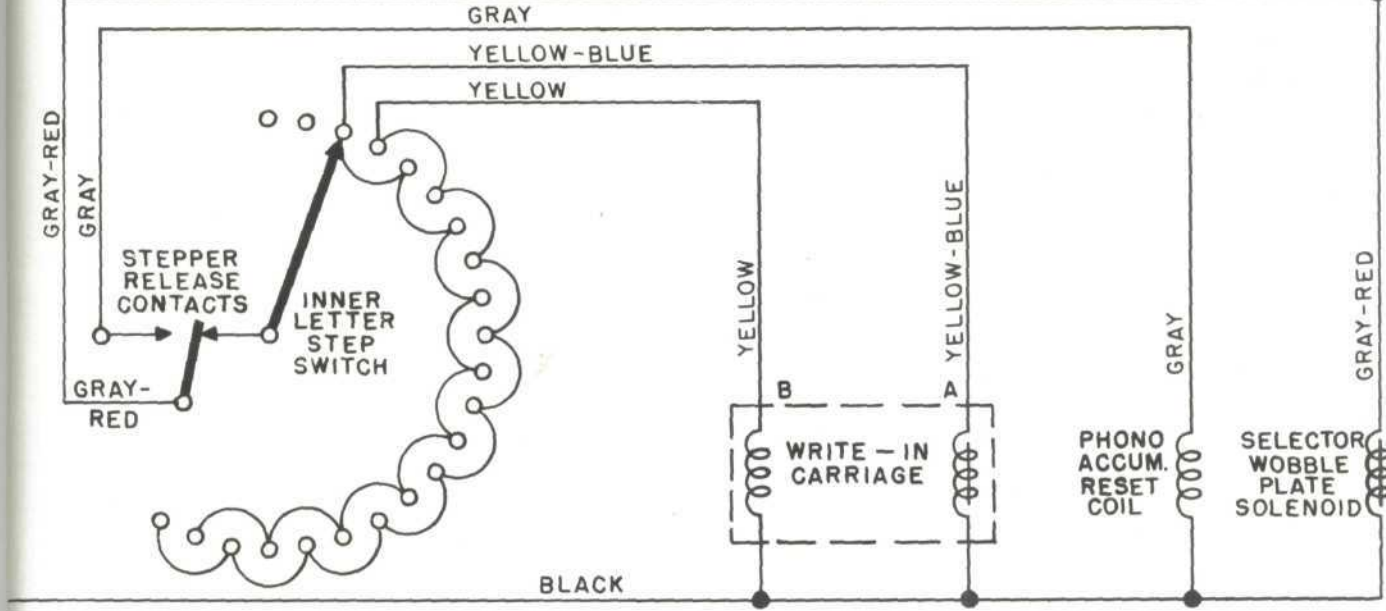
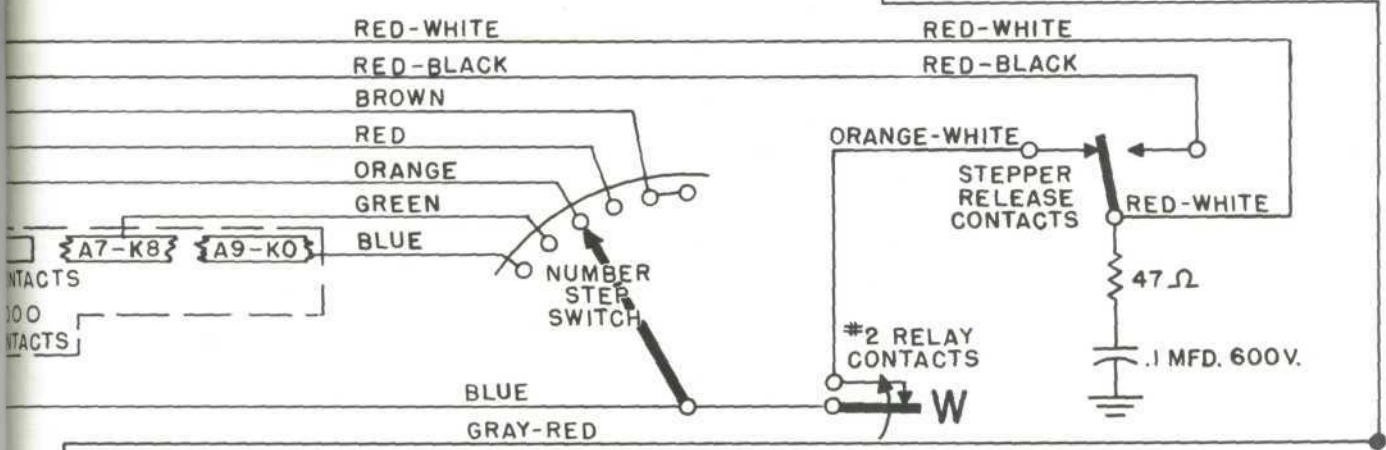
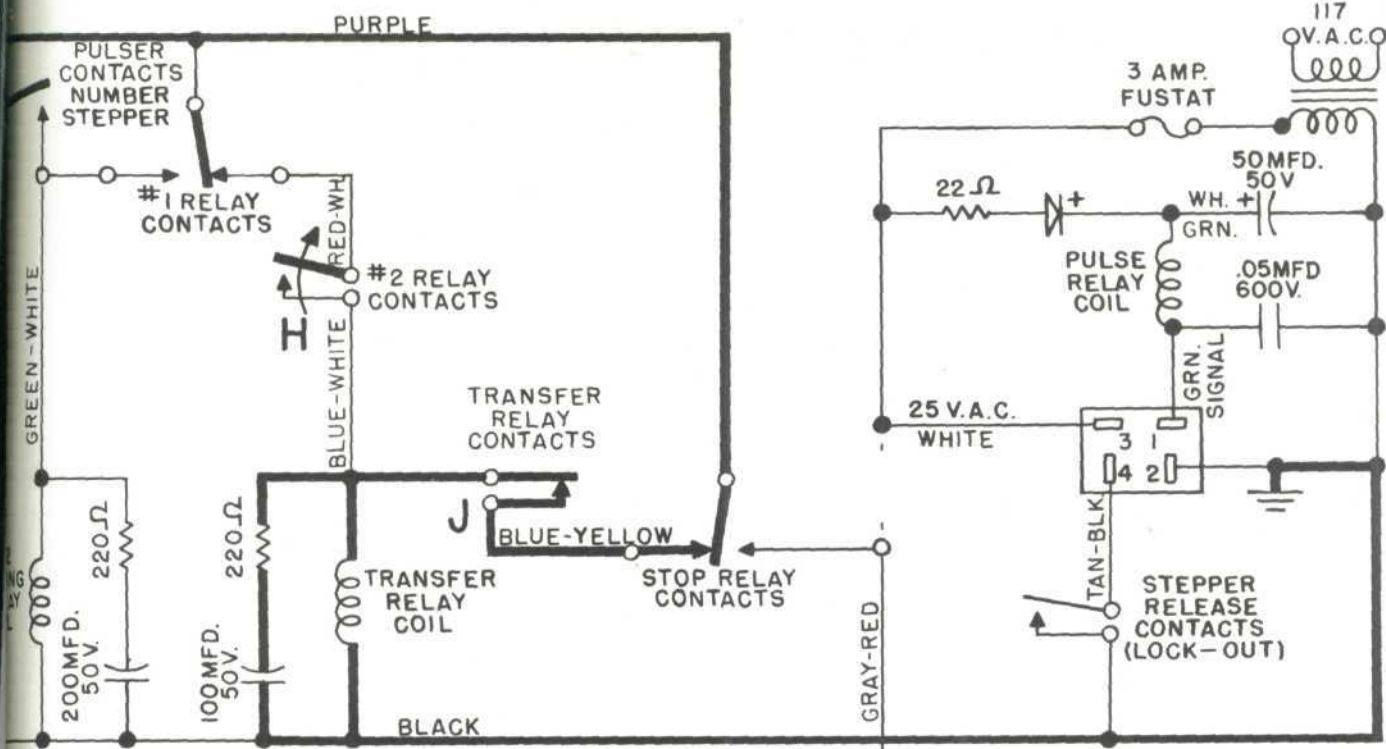


**OPERATION SEQUENCE No. 7  
NUMBER STEP SWITCH ARM ADVANCES •  
SECOND TRAIN PULSE CEASES**

After all the pulses have ceased and the Letter and Number step switch arms have assumed the positions which connect proper phonograph selector circuits, the sequence takes place as follows:

1. T relay #2 relaxes, closing contacts "L" and "W", and opening contact "H".
2. Although contact "H" opens, the transfer relay remains energized thru the self locking contact "J".
3. Contact "L" closes operating the selector Write-in motor thru transfer relay contact "K". The operation of the motor rotates a Wiper assembly around the selector printed circuit disc.



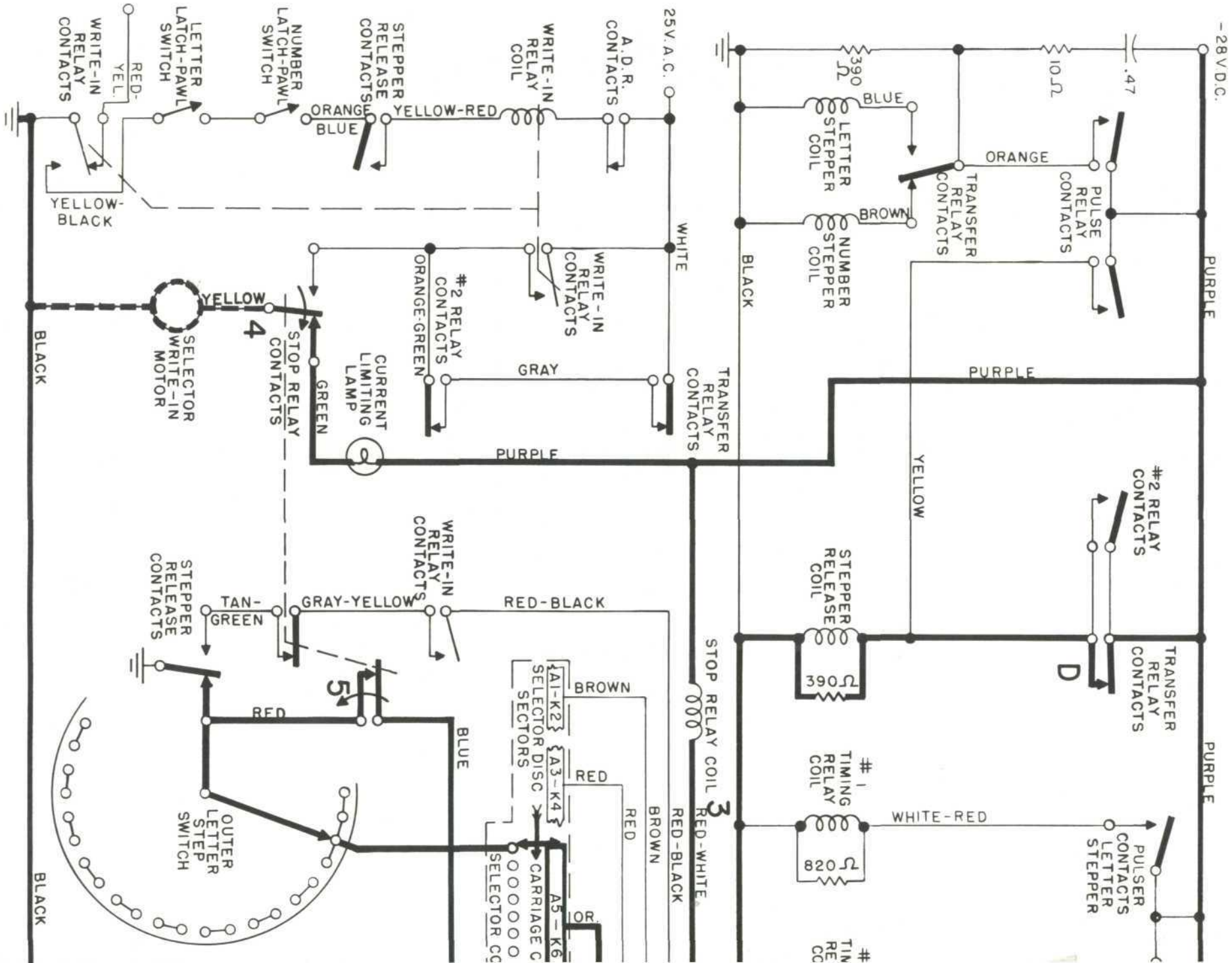


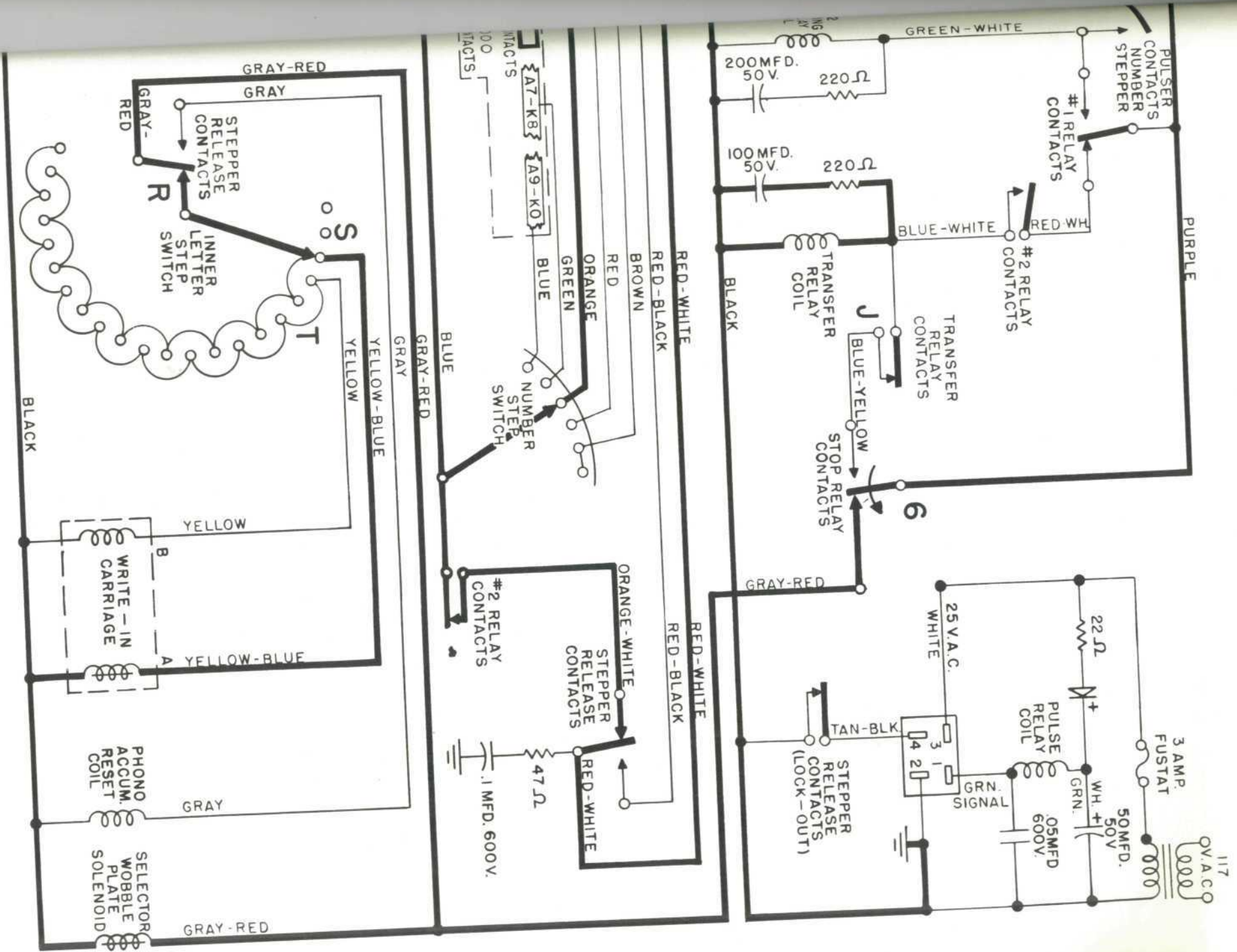
**OPERATION SEQUENCE No. 8**  
**WRITE-IN MOTOR STOPS • SELECTION MADE**

When the Wiper assembly arrives at the circuits connected by the Letter and Number pushbuttons, the step switch arms energize the Stop relay coil "No. 3". The Stop relay contacts "No. 4", "5" and "6", transfer stopping selector Write-in motor, the Write-in carriage stops, and the following receiver sequence takes place:

1. Thru the forward contact "R", minus 28 V.D.C. current flows thru either "S" or "T" (determined by the position of the step switch arm) to the proper Write-in carriage solenoid operating a selector lever.
2. The Stop relay interrupts current flow at "No. 6" thru contact "J" to the Transfer relay coil, however the R/C network across the coil causes the relay to have delayed release characteristics.
3. Current continues to flow thru contact "D", keeping the Release magnet coil energized.





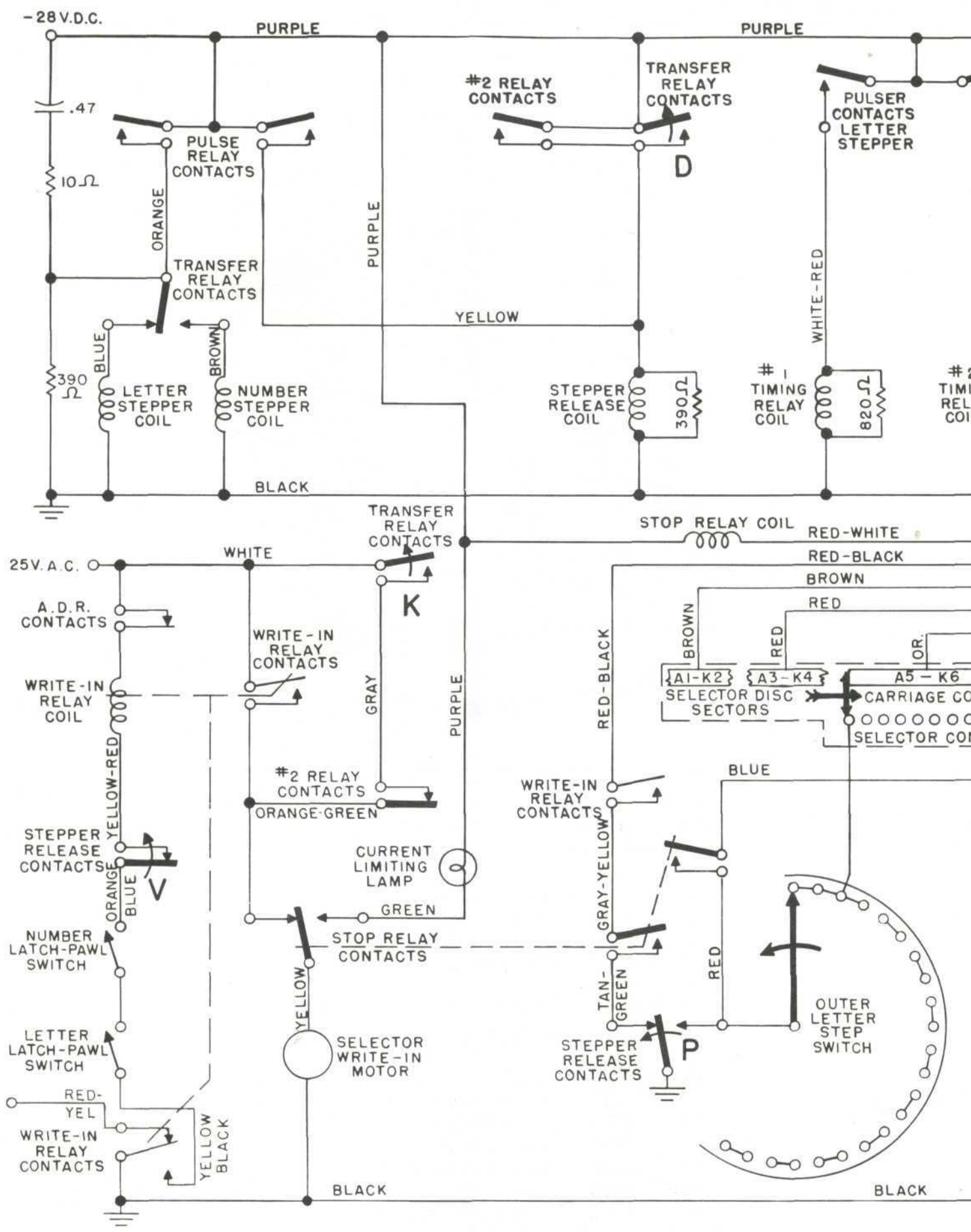


*OPERATION SEQUENCE No. 9*

**RECEIVER RESETS**

1. The Transfer relay relaxes, opening contacts "D" "J" and "K". Contact "D" breaks the circuit to the Release magnet coil. This allows the detent pawls to disengage the nylon ratchet gears on the Letter and Number stepper switch, and three wiper arms return to "Home" position.

THE RELEASE MAGNET COIL CONTACTS "M" "P" "R" "V" AND "X" ARE NOW REPOSITIONED FOR SELECTIONS FROM THE PHONOGRAPH KEYBOARD ONLY.



-28 V.D.C.

PURPLE

PURPLE

.47  
10Ω

#2 RELAY CONTACTS

TRANSFER RELAY CONTACTS

PULSER CONTACTS  
LETTER STEPPER

PULSE RELAY CONTACTS

TRANSFER RELAY CONTACTS

PURPLE

YELLOW

390Ω

LETTER STEPPER COIL

NUMBER STEPPER COIL

STEPPER RELEASE COIL  
390Ω

#1 TIMING RELAY COIL  
820Ω

#2 TIMING RELAY COIL

BLACK

TRANSFER RELAY CONTACTS

STOP RELAY COIL

RED-WHITE

RED-BLACK

BROWN

RED

25V. A.C.

WHITE

A.D.R. CONTACTS

WRITE-IN RELAY CONTACTS

K

WRITE-IN RELAY COIL

GRAY

PURPLE

#2 RELAY CONTACTS

ORANGE-GREEN

CURRENT LIMITING LAMP

A1-K2 A3-K4 A5-K6  
SELECTOR DISC SECTORS

CARRIAGE COIL

SELECTOR CONTACTS

STEPPER RELEASE CONTACTS

NUMBER LATCH-PAWL SWITCH

LETTER LATCH-PAWL SWITCH

WRITE-IN RELAY CONTACTS

WRITE-IN RELAY CONTACTS

GREEN

STOP RELAY CONTACTS

SELECTOR WRITE-IN MOTOR

WRITE-IN RELAY CONTACTS

RED-BLACK

BLUE

STEPPER RELEASE CONTACTS

GRAY-YELLOWS

TAN-GREEN

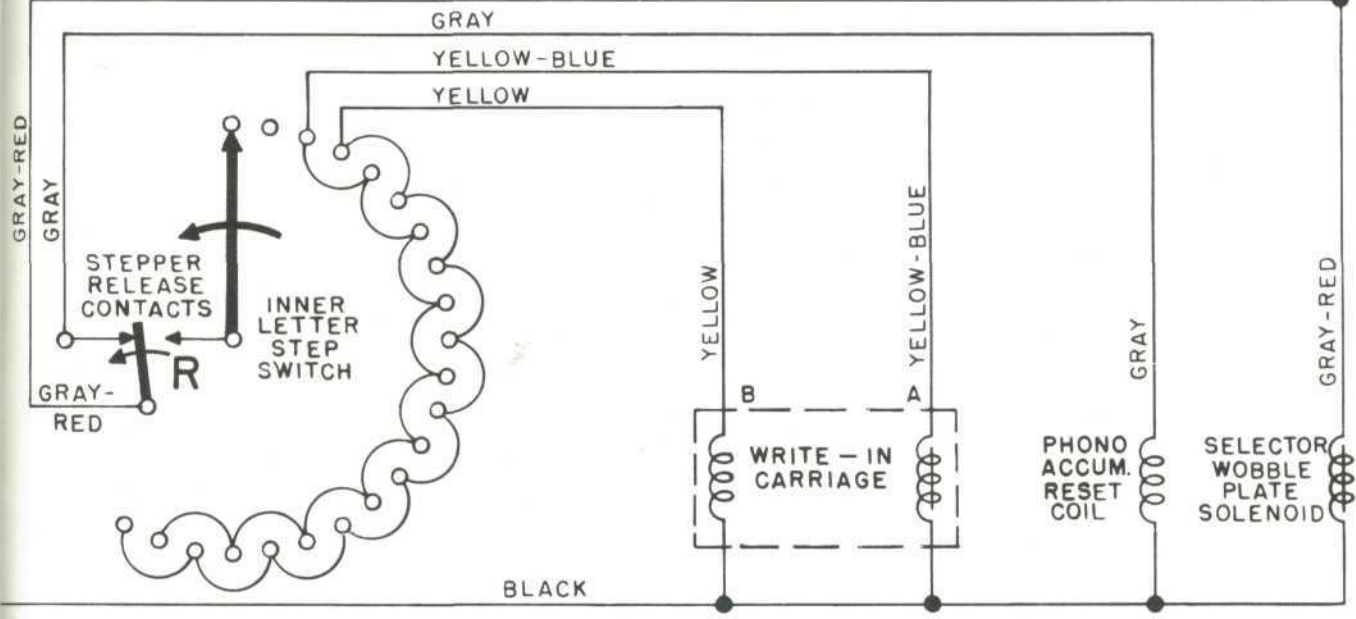
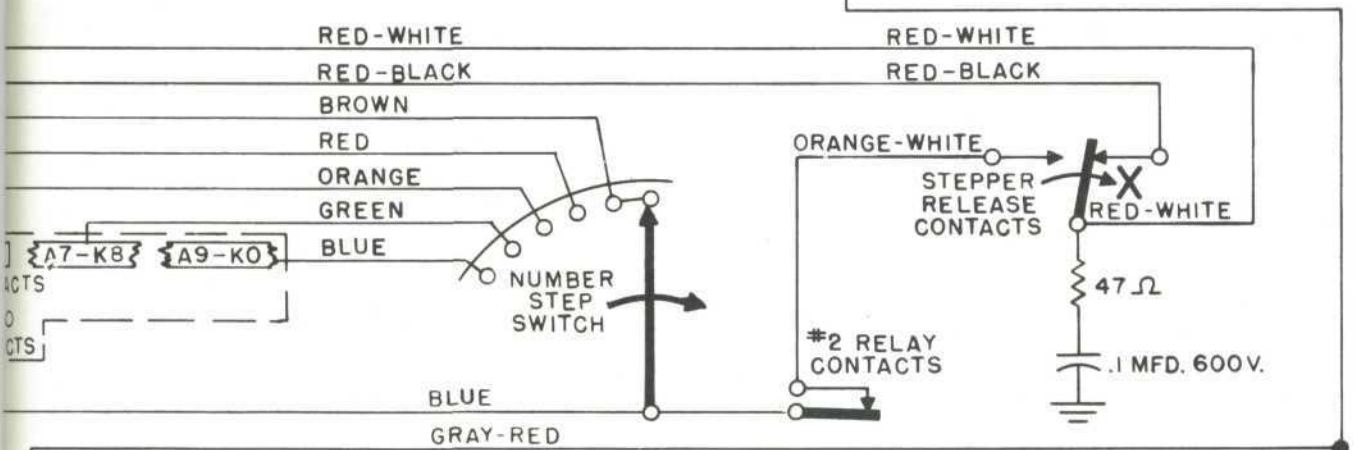
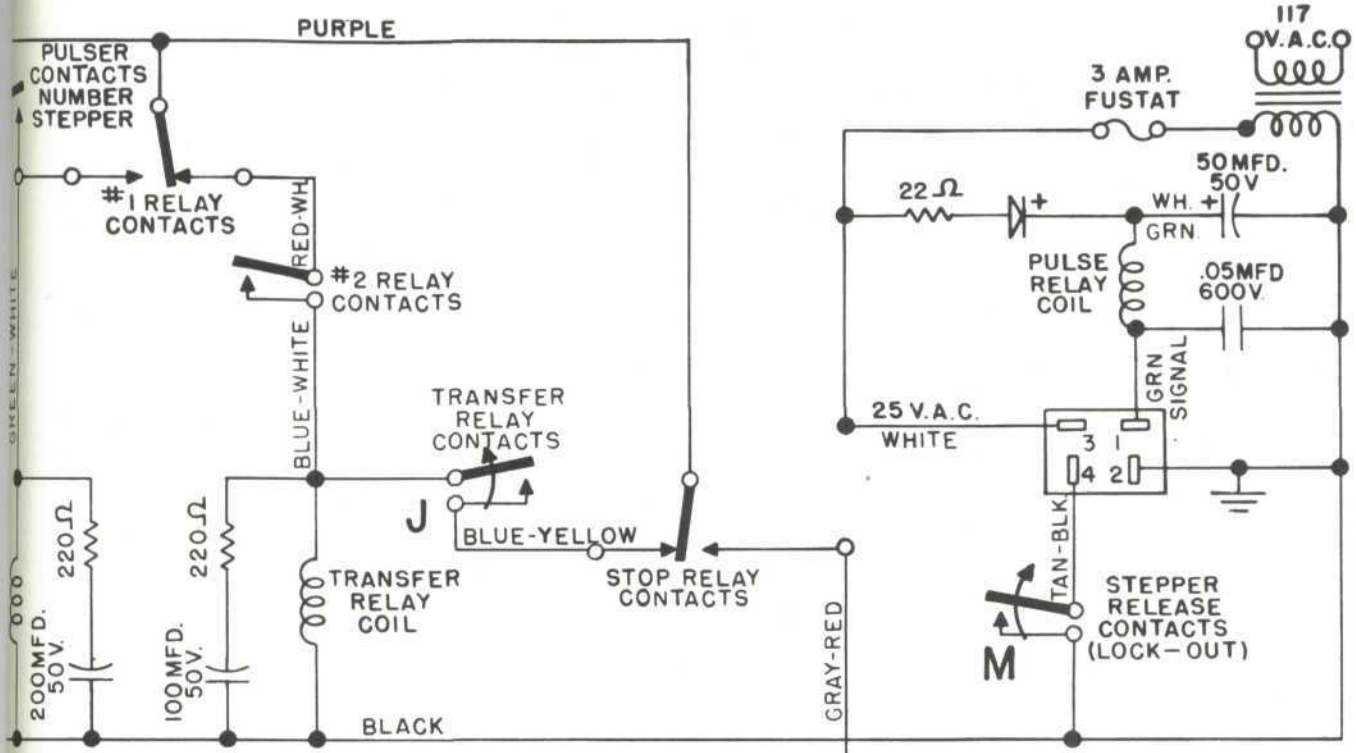
OUTER LETTER STEP SWITCH

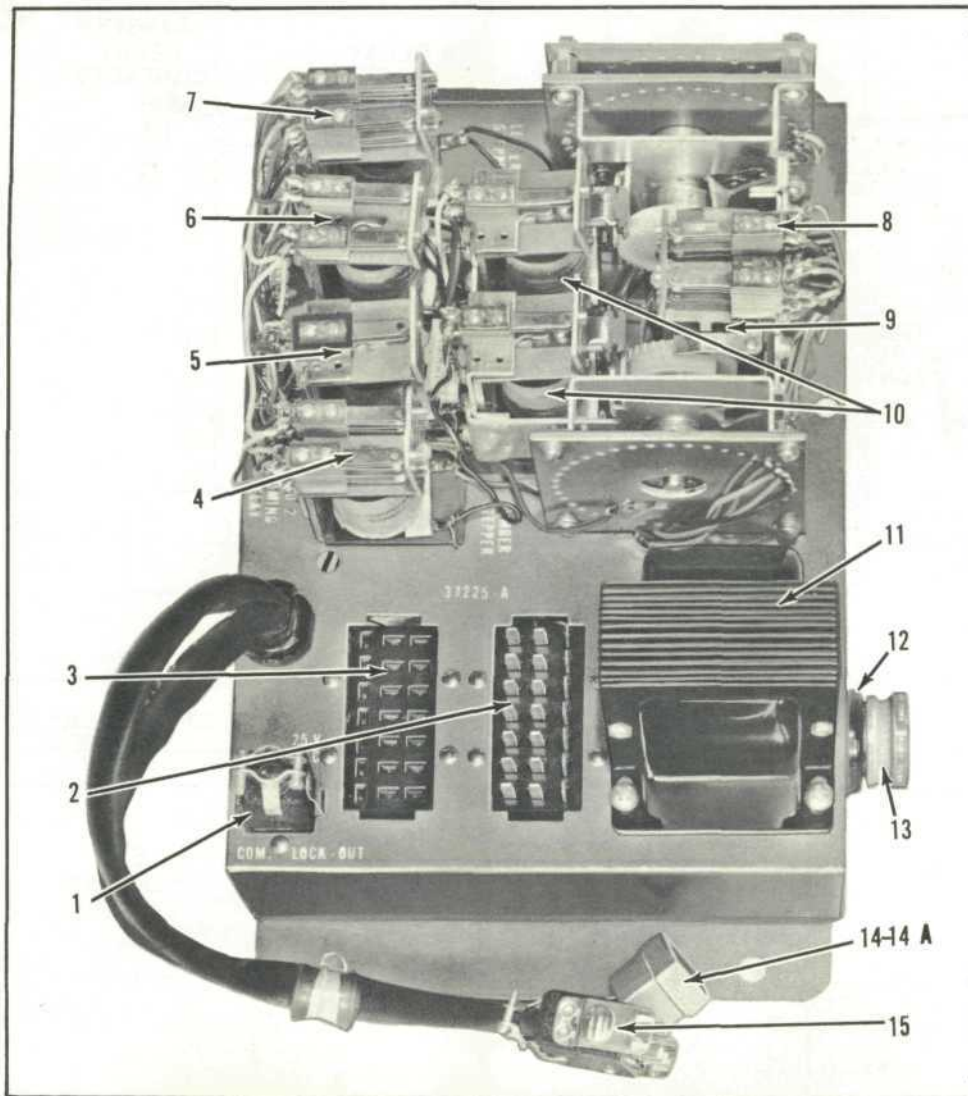
YELLOW  
BLACK

BLACK

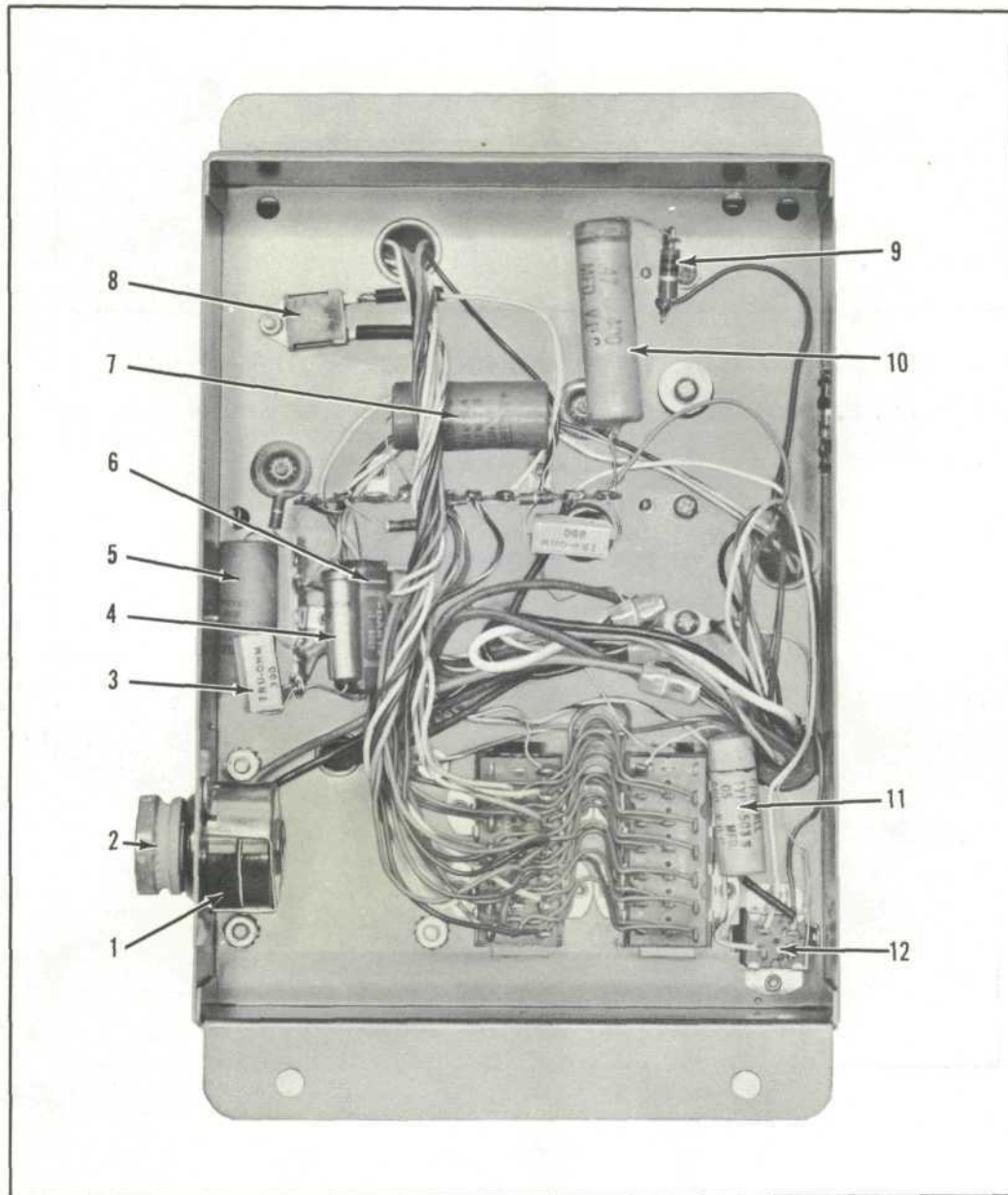
BLACK

P





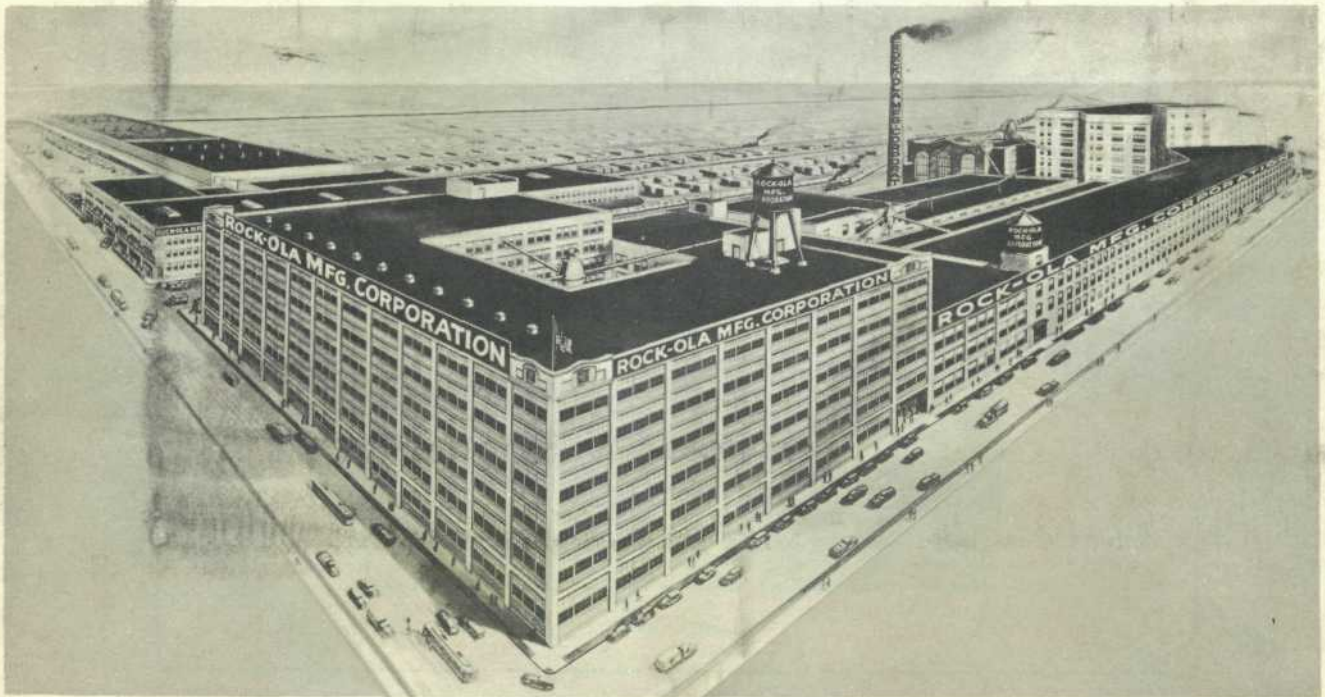
Item	Part No.	Description
1	17597	4 Contact Plug and Shell
2	34827	21 Prong Jones Plug
3	16853	21 Prong Jones Socket
4	35600	Transfer Relay
5	18852	Timing Relay #1
6	18851	Repeat Relay
7	35600	Transfer Relay
8	35532	Stepper Unit
9	35937	220 Ohm Release Coil
10	35938	27 Ohm Step-up Coil
11	14360	Signal Transformer
12	36213	Fustat Holder
13	12942	3 Amp Fustat
14	33644	Amp Lok Cap - 9 Circuit
14-A	34118	Amp Lok Contact - Solder Type (not shown)
15	V-650	8 Prong Plug and Shell



Item	Part No.	Description
1	32613	Fustat Holder
2	12942	3 Amp Fustat
3	35633	390 Ohm 5 Watt Resistor
4	35387	50 MFD. 50 V. Condenser
5	35389	100 MFD. 50 V. Condenser
6	35385	.1 MFD. 600 V. Capacitor
7	35631	200 MFD. 50 V. Condenser
8	35363	Rectifier
9	36021	10 Ohm 1 Watt Resistor
10	14589	.47 MFD. 400 V. Condenser
11	19066	.05 MFD. 600 V. Capacitor
12	17596	4 Contact Socket

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