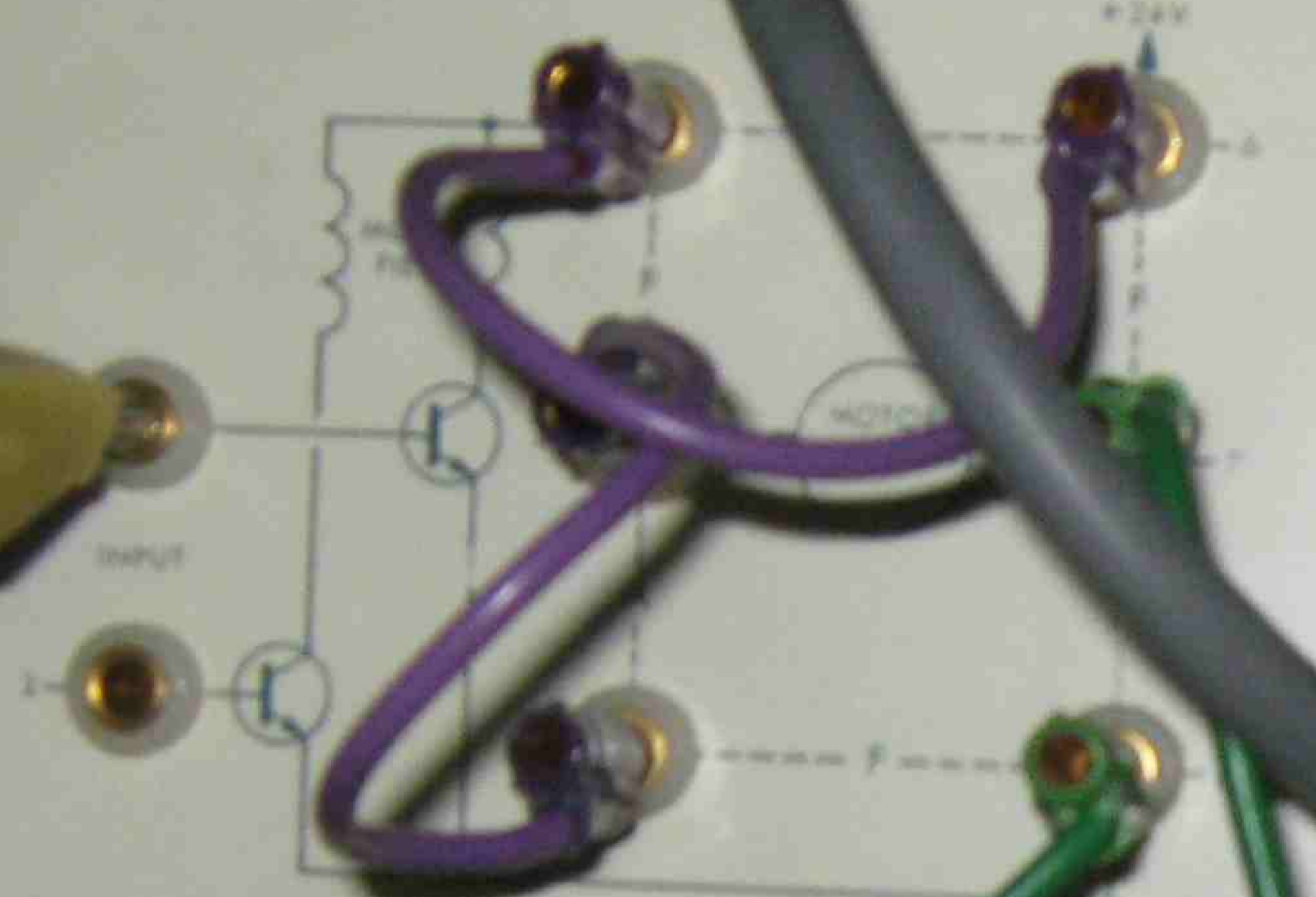


FORCLL  
ELECTRIC  
SERVICES  
MOB: 8402 11  
FAX: 67 874

### SERVO AMPLIFIER UNIT SA 150D



INSERT LINKS F FOR FIELD CHARACTERISTIC  
INSERT LINKS A FOR ARMATURE CHARACTERISTIC

912V

CCW

TO MOTOR

FROM POWER SUPPLY

912V

### POWER SUPPLY UNIT PS 150E

+24 VOLTS D.C. LINE

24V 0.75A

AMPS D.C.

POWER ON

+24V

COM

-24V

AC1

COM

AC2

0.05A

0.1A

0.2A

0.5A

1.0A

2.0A

5.0A

10A

20A

50A

100A

200A

500A

1000A

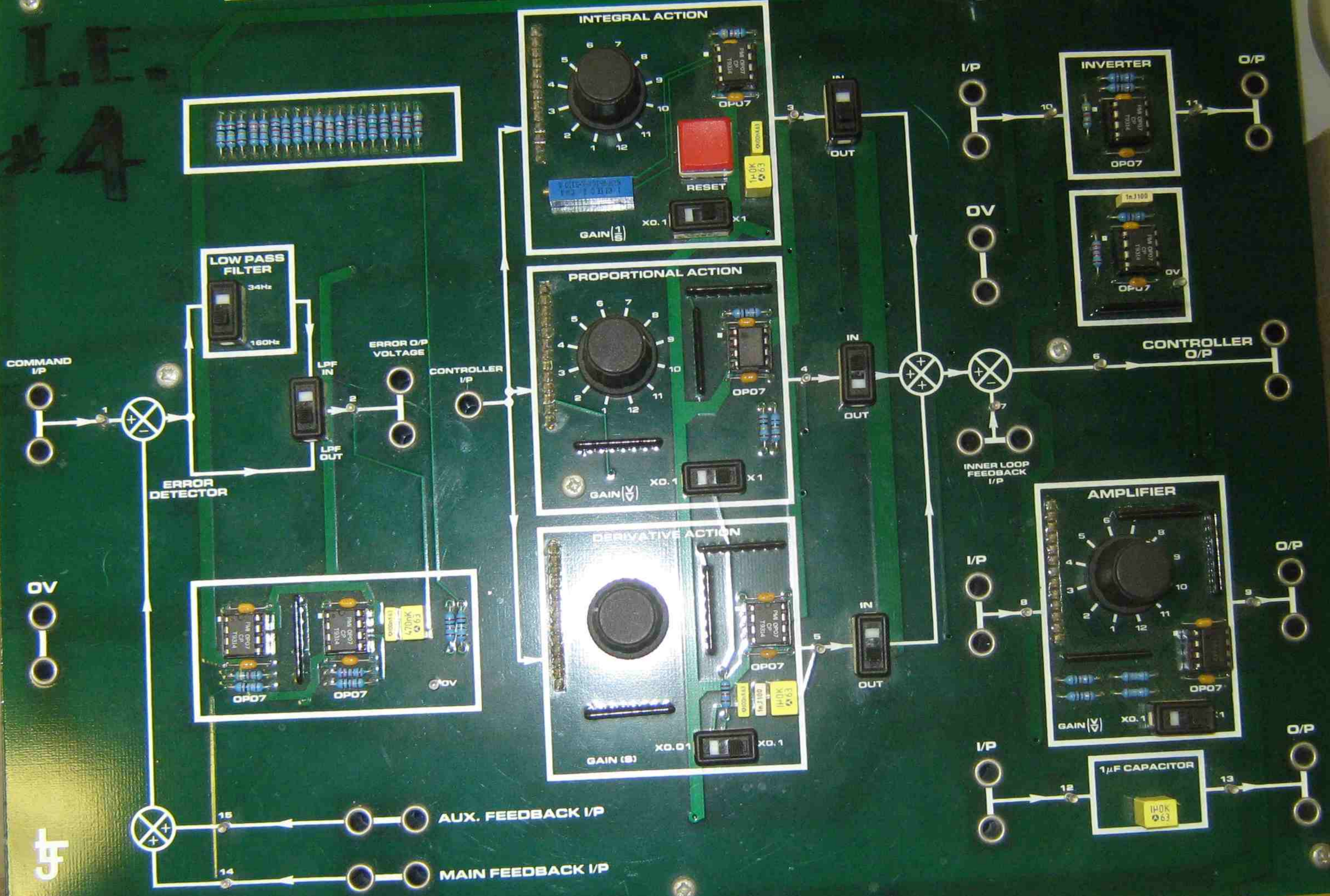
GE



# P.I.D. CONTROLLER

L.E.  
#4

+12V 0V -12V



ELECT. EUSH



# P.I.D. CONTROLLER

I.E.  
#4

+12V 0V -12V



### LOW PASS FILTER

34Hz  
180Hz

IN OUT

COMMAND I/P

ERROR DETECTOR

ERROR O/P VOLTAGE

CONTROLLER I/P

### INTEGRAL ACTION

GAIN (1/s) X0.1

RESET

OP07

### PROPORTIONAL ACTION

GAIN (V) X0.1

OP07

### DV ACTION

GAIN (s) X0.01

OP07

### INVERTER

OP07

### OP07

### AMPLIFIER

GAIN (V) X0.1

OP07

### 1/IF CAPACITOR

0V

tf

AUX. FEEDBACK I/P

MAIN FEEDBACK I/P

I/P

O/P

0V

CONTROLLER O/P

I/P

O/P

I/P

O/P

IN OUT

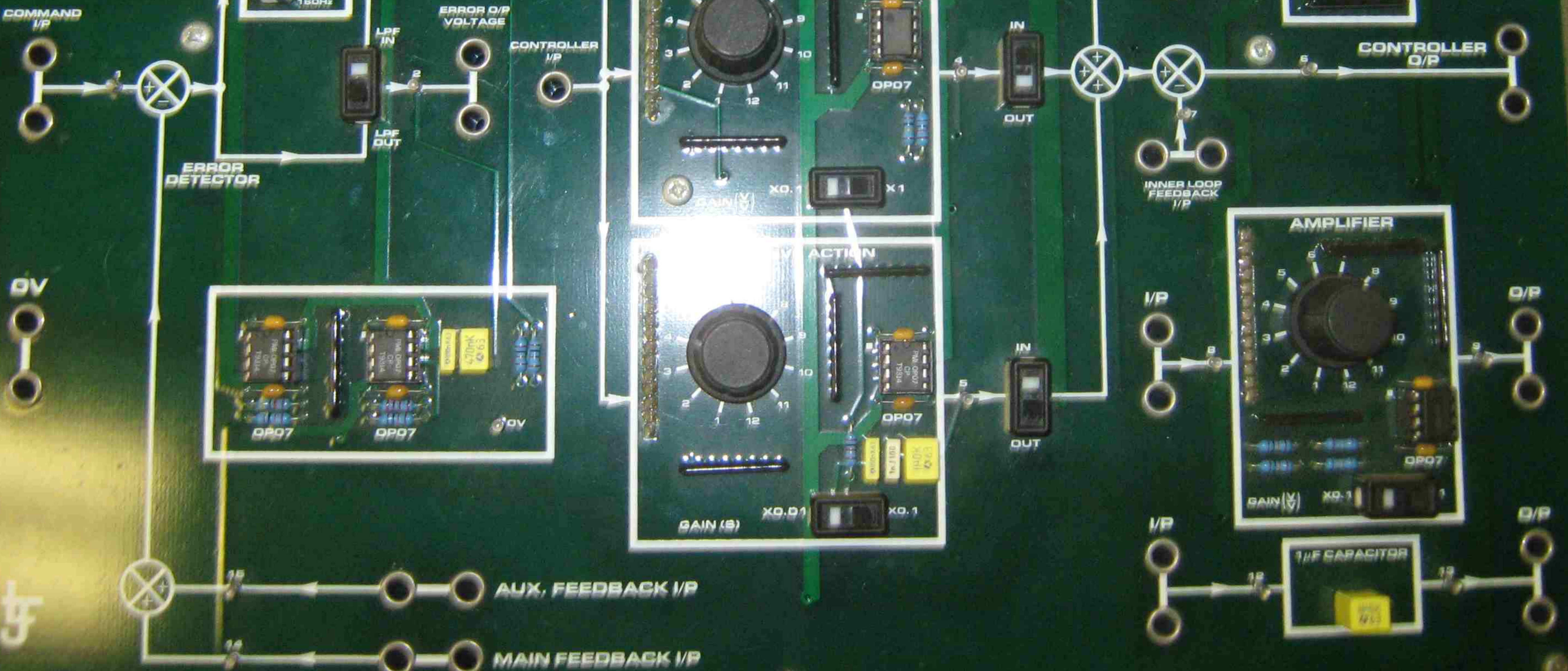
IN OUT

IN OUT

INNER LOOP FEEDBACK I/P

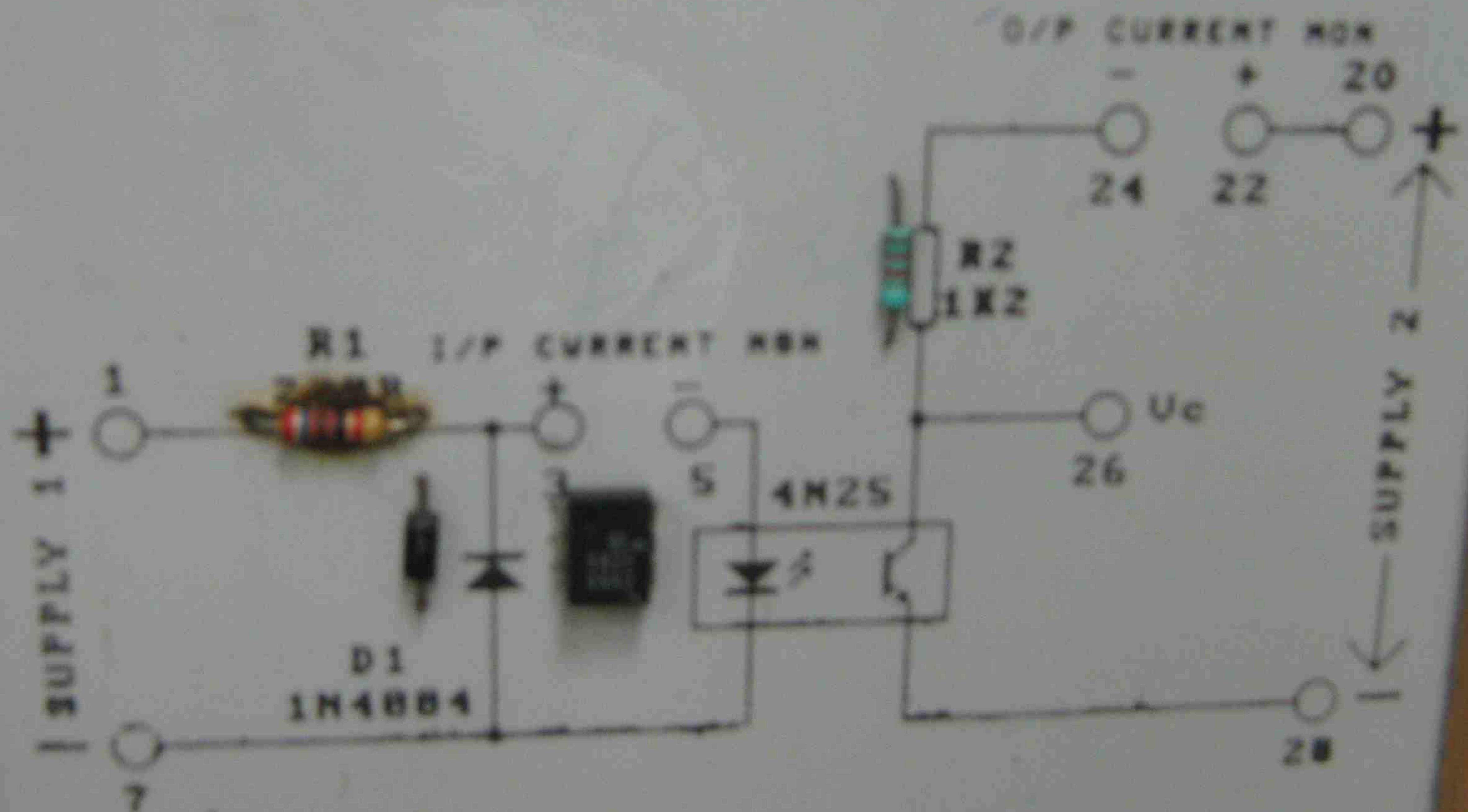
I/P

O/P



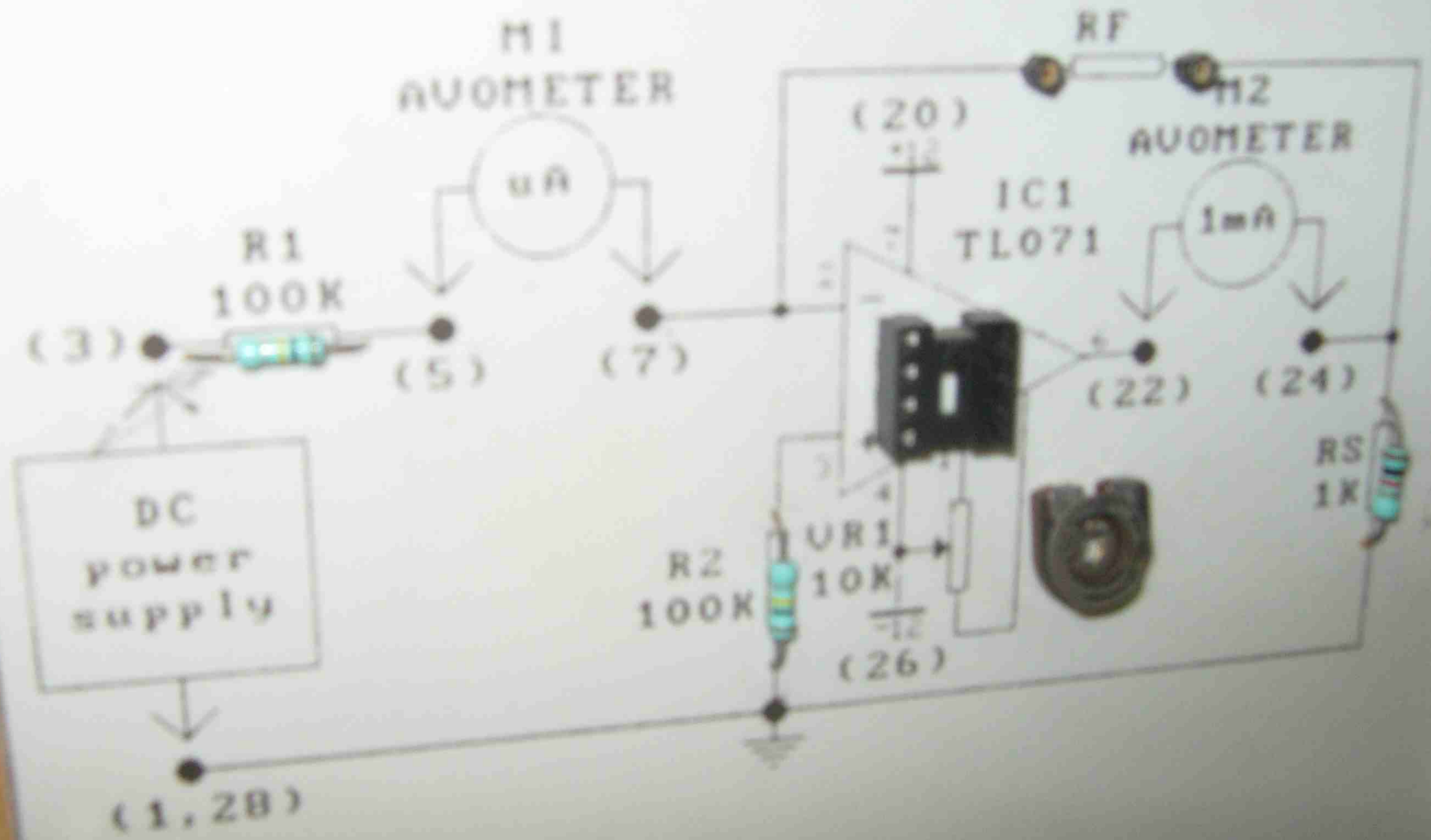


# OPTOCOUPLER



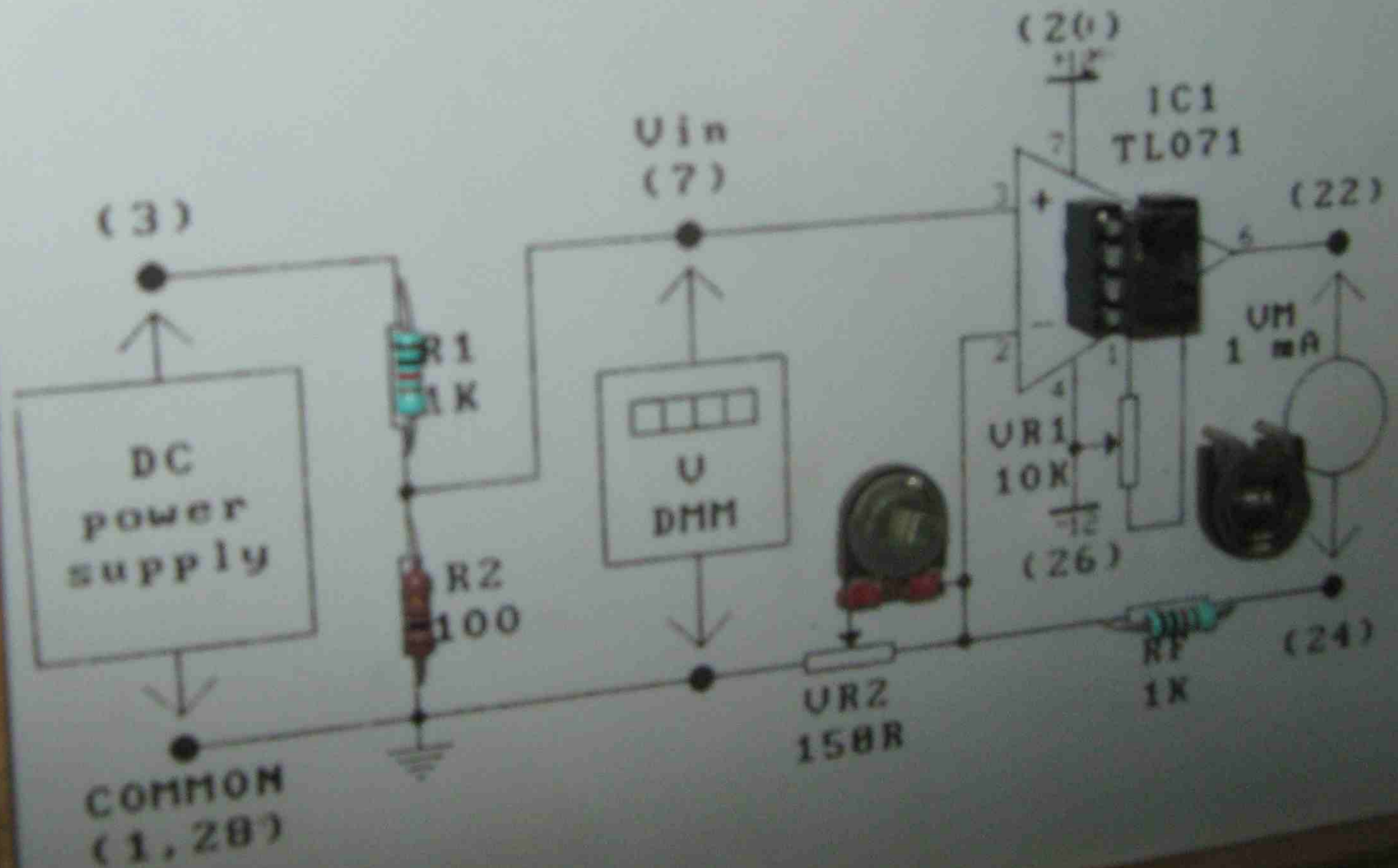


# D. C. MICROAMMETER





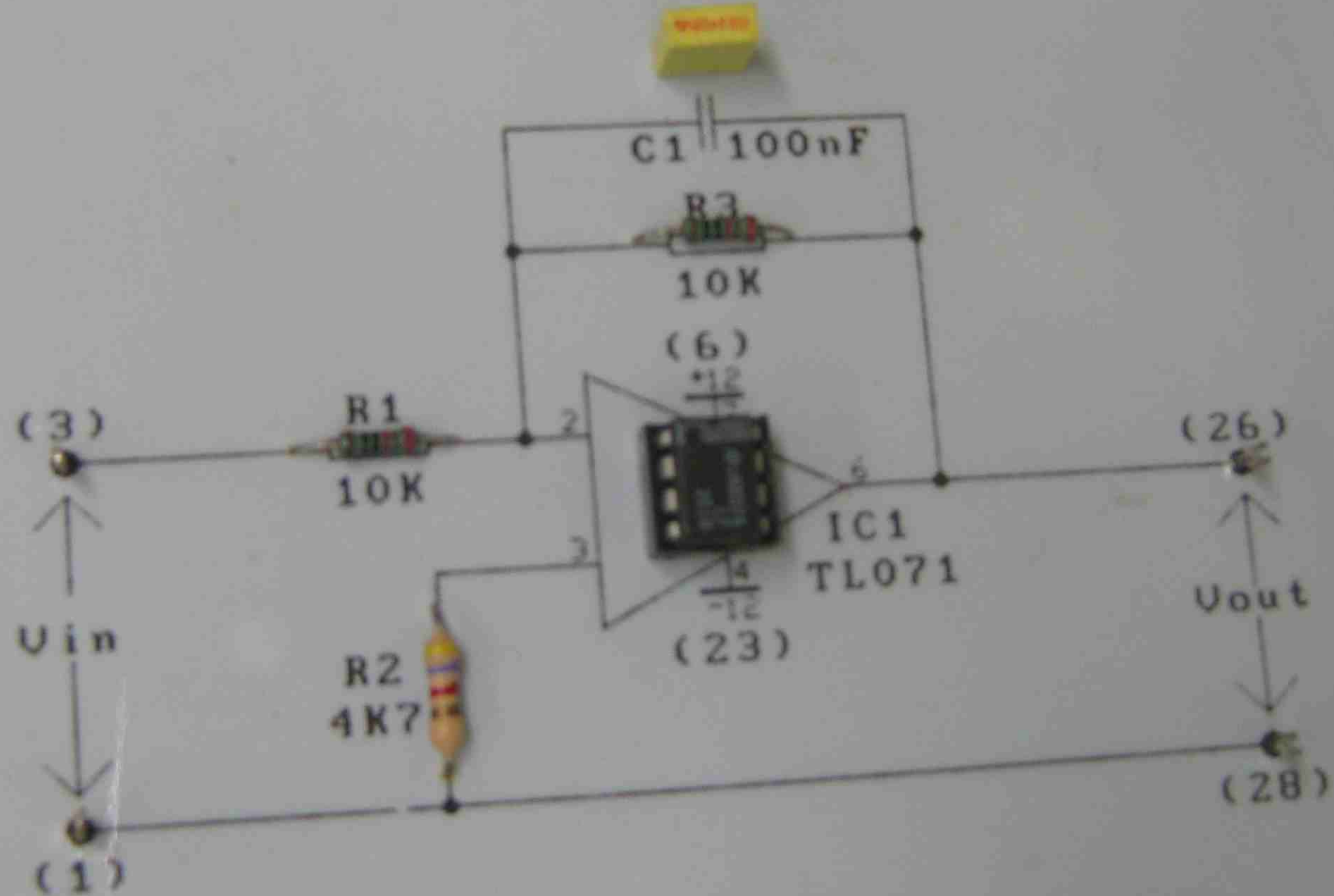
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APPLIED ELECTRICITY INDUSTRIAL ELECTRONICS  
OPERATIONAL AMPLIFIERS 6009C #8  
D. C. MILLIVOLTMETER





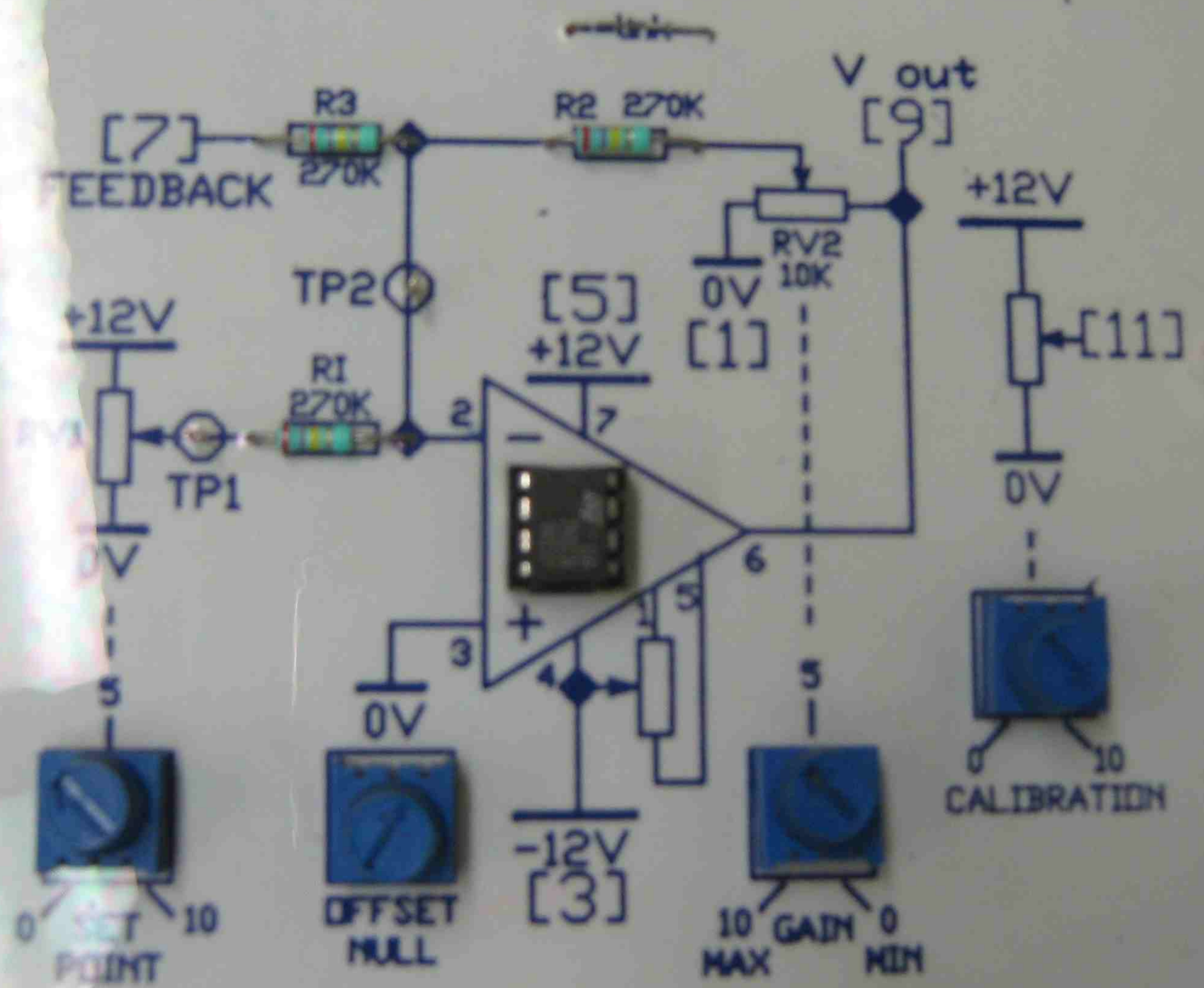
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OPERATIONAL AMPLIFIERS 6016C #13A

## INTEGRATOR



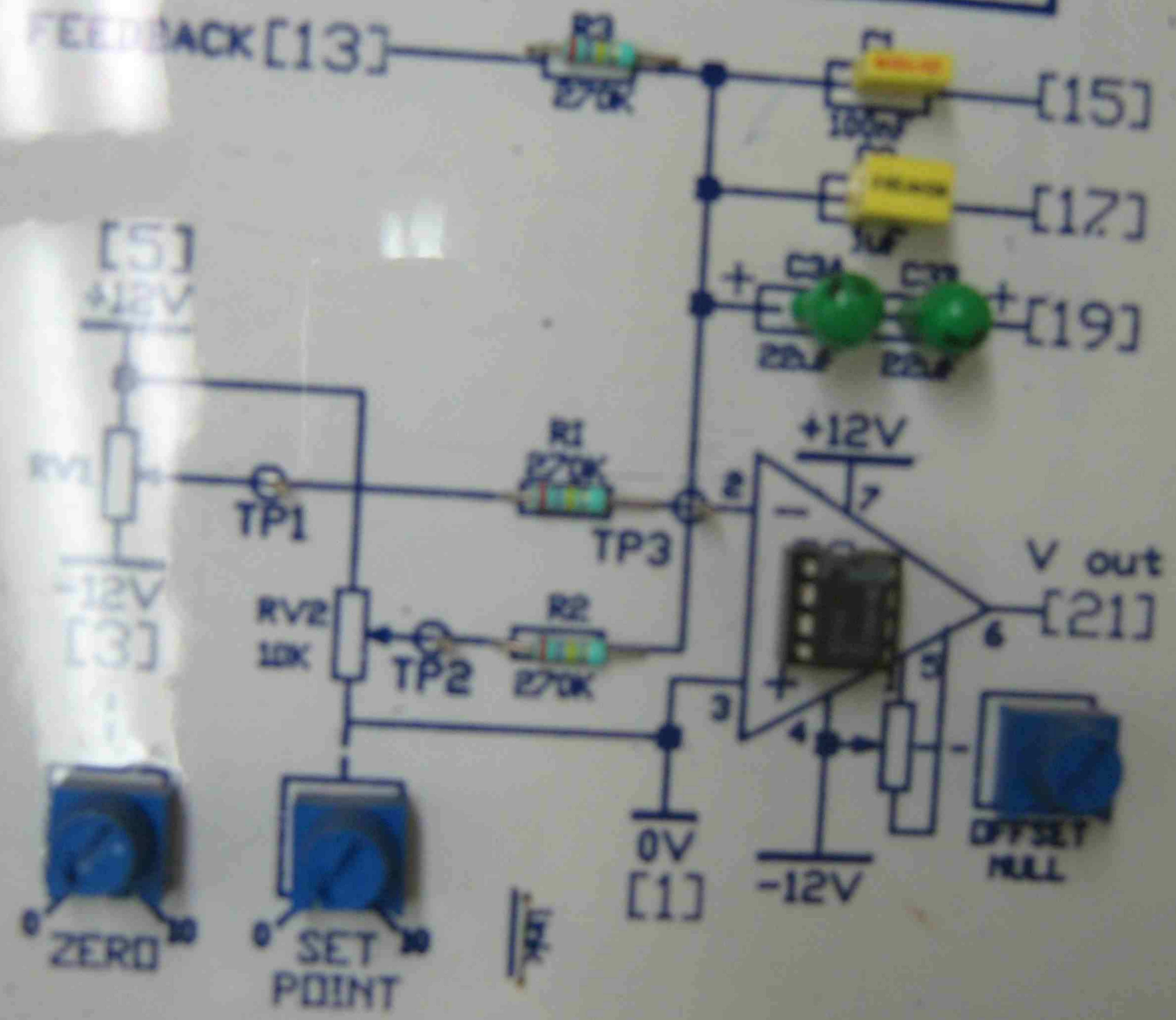


# MOTOR PROPORTIONAL CONTROL

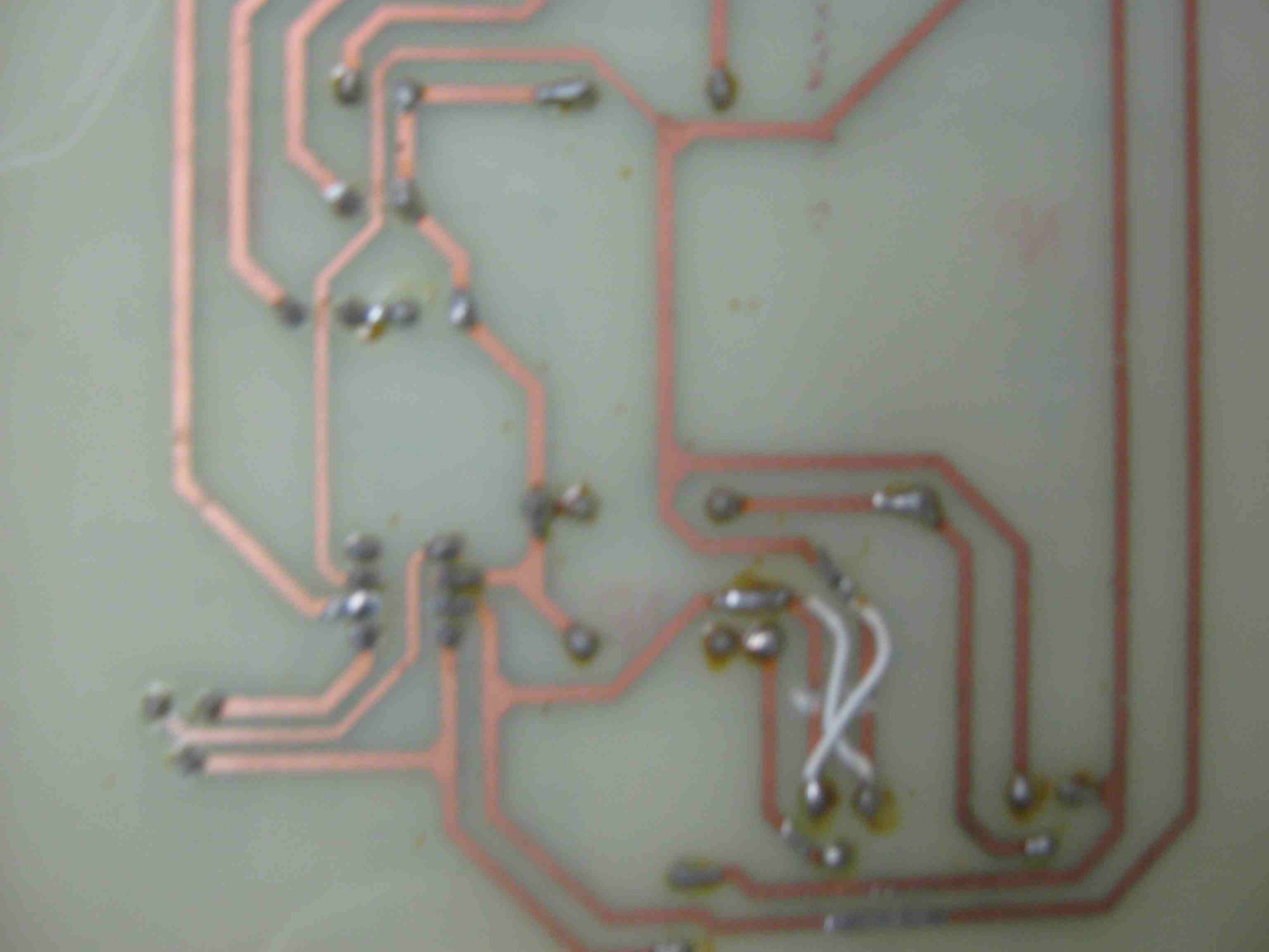




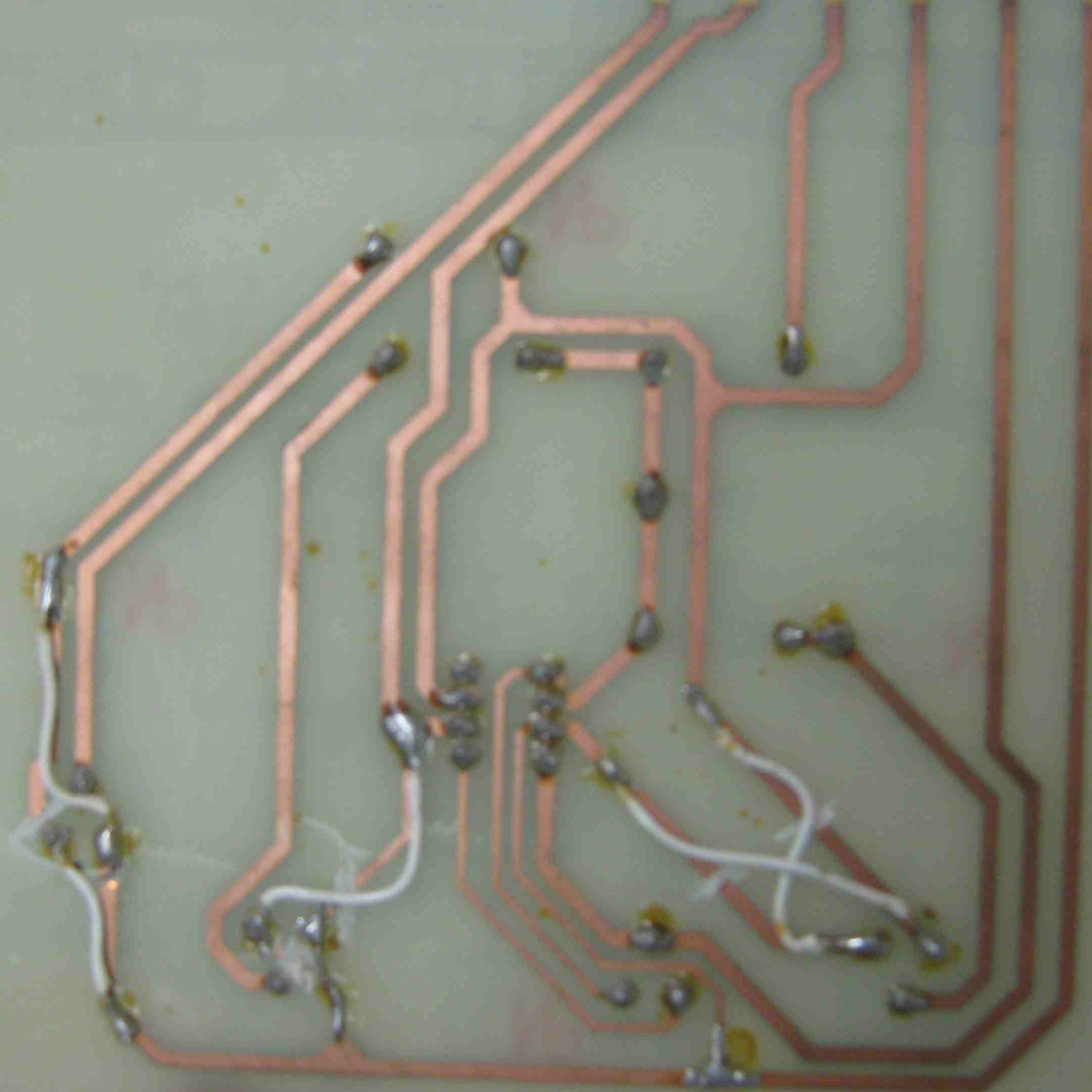
# ANALOG CONTROL





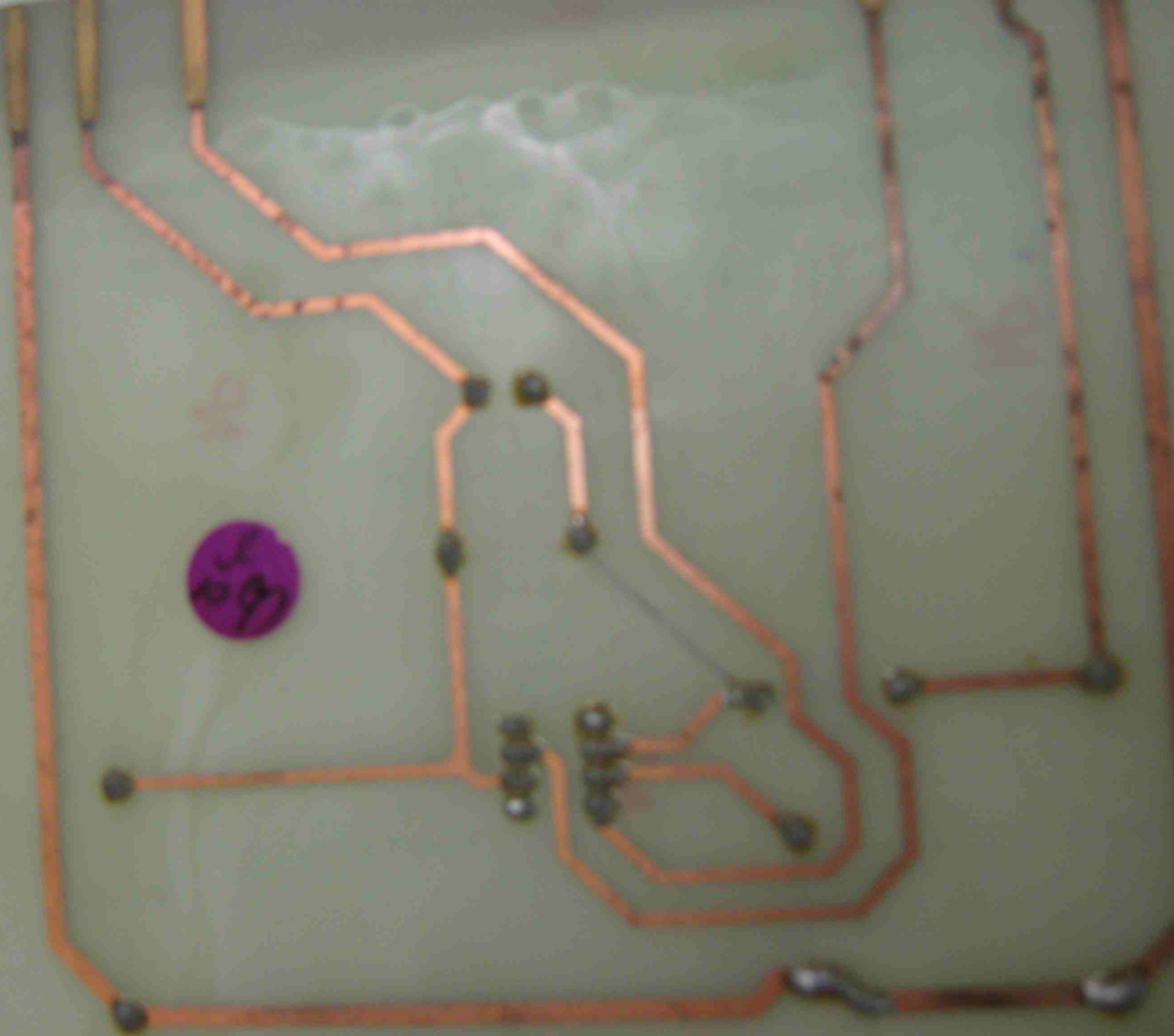








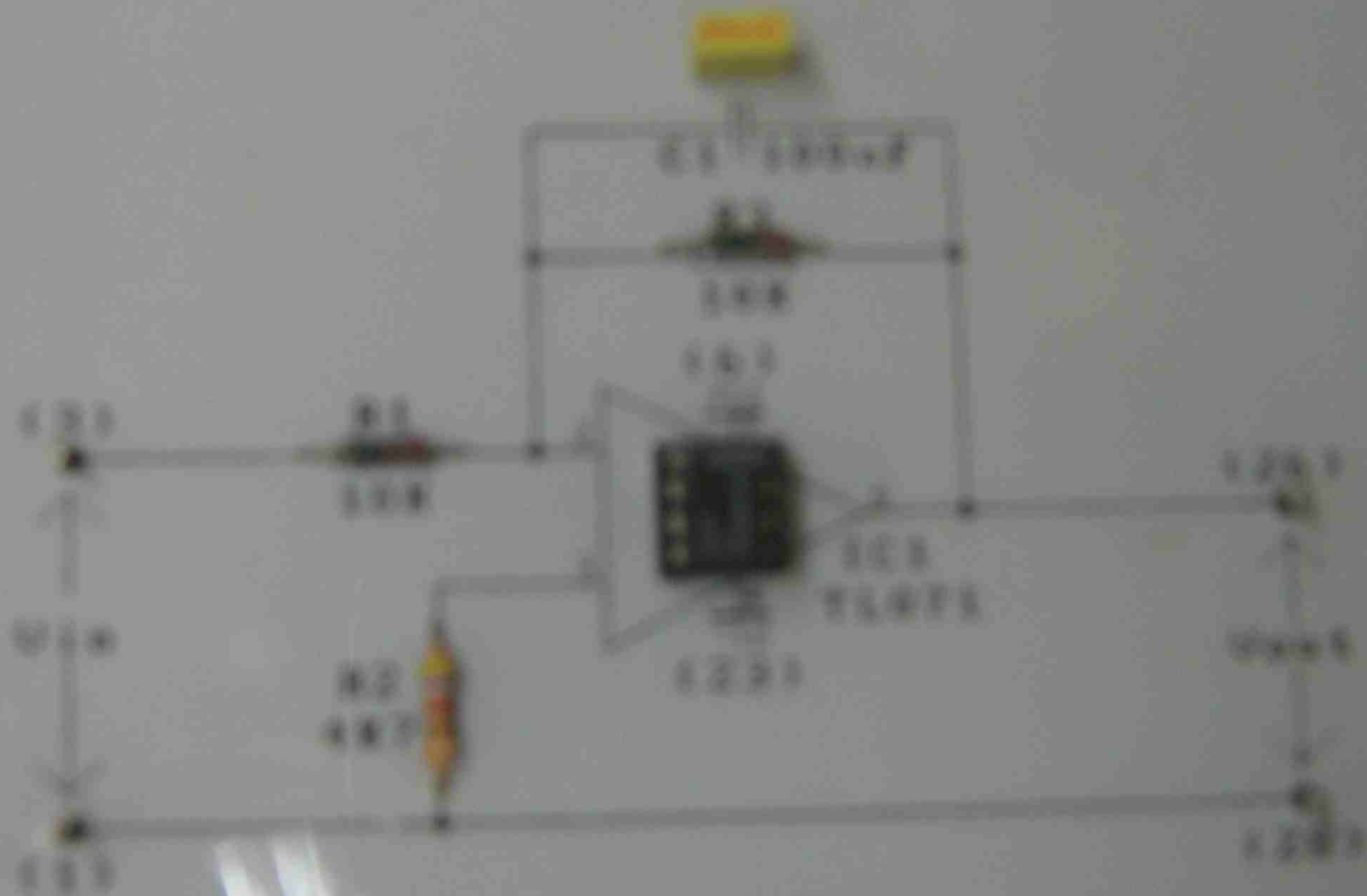
OF TECHNOLOGY  
NOLOGY  
ONAL G



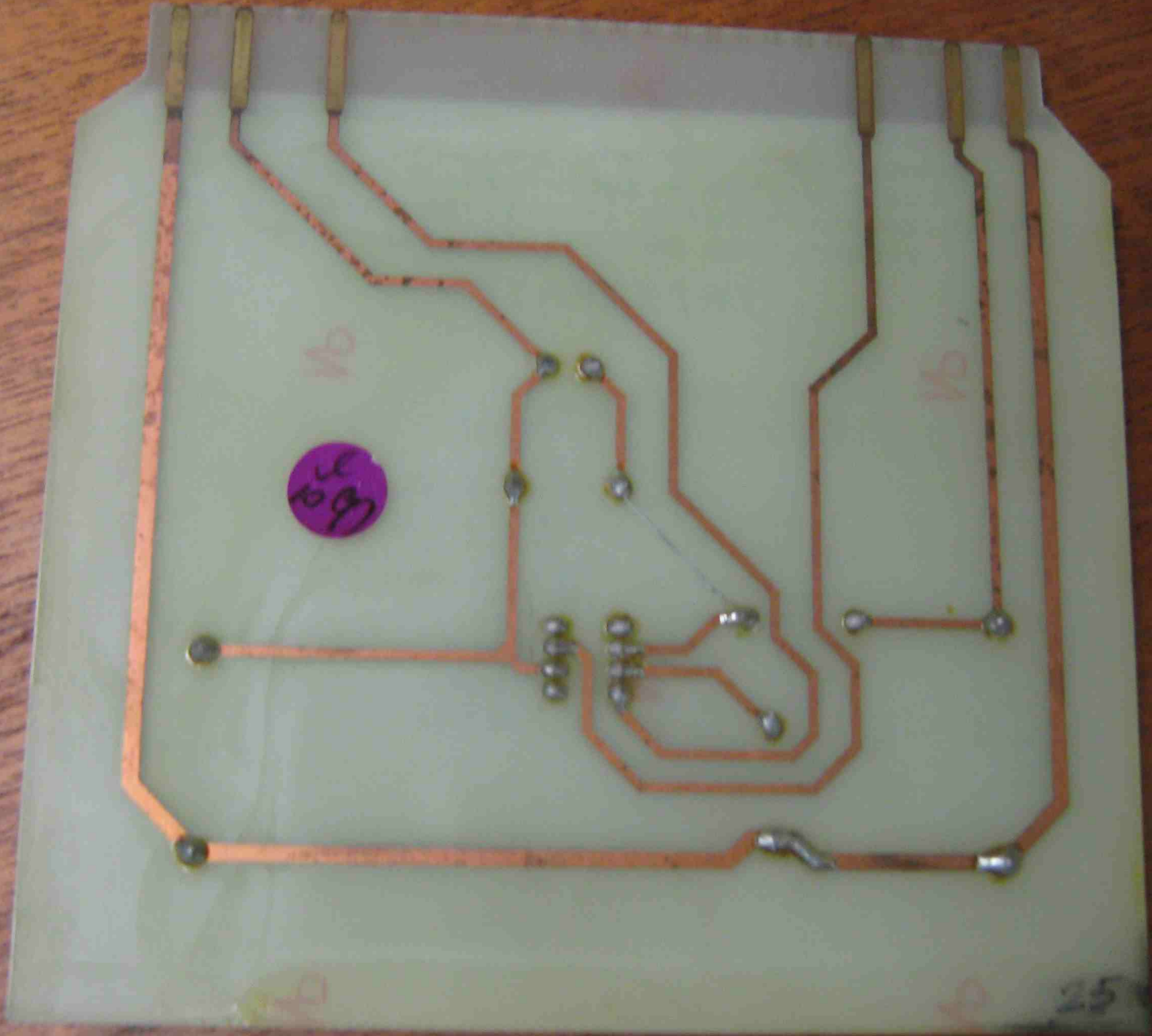


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OPERATIONAL AMPLIFIERS LABOR 11.10

## INTEGRATOR







Handwritten text on a purple circular component, possibly a component ID or date.

16

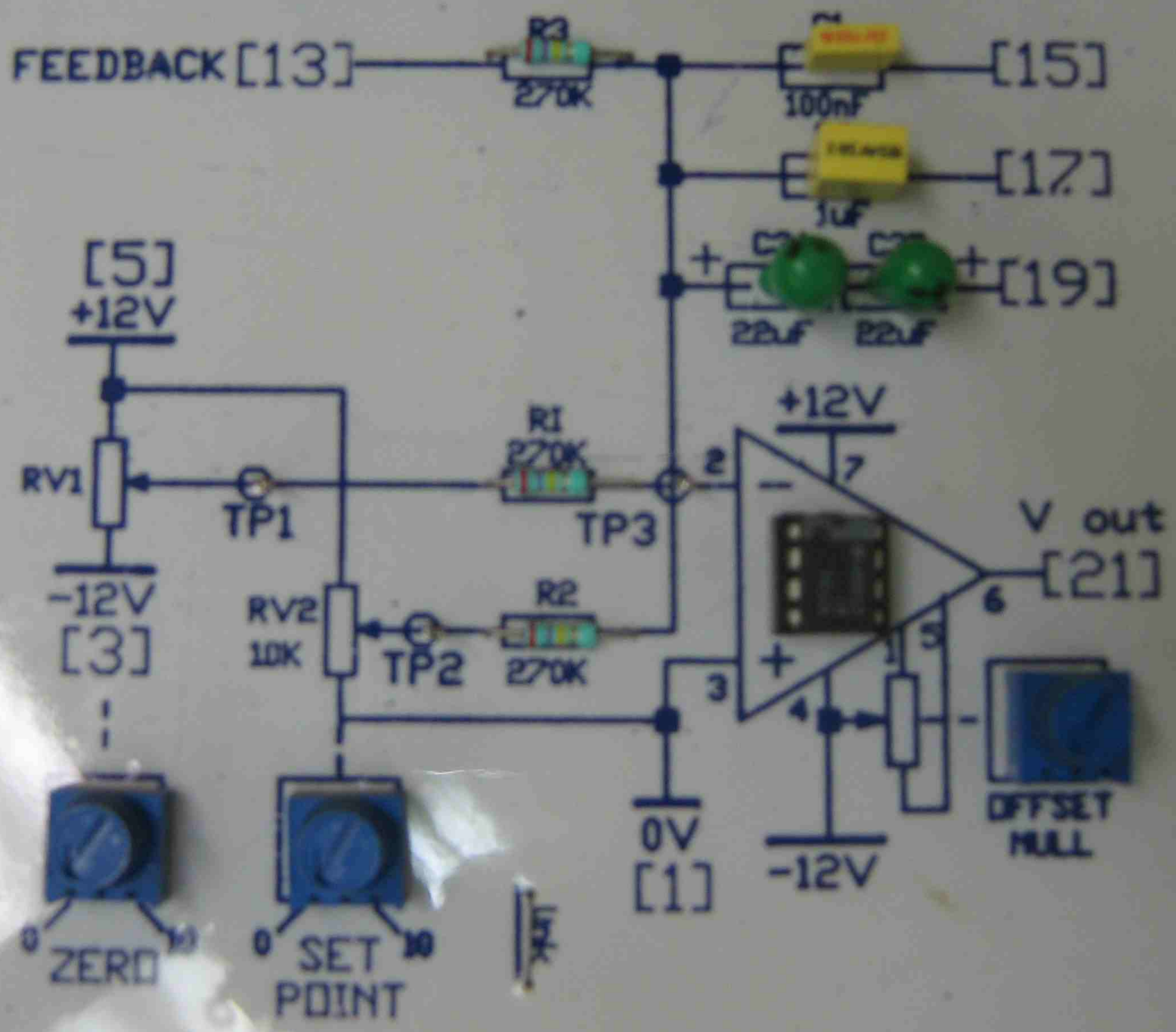
16

25

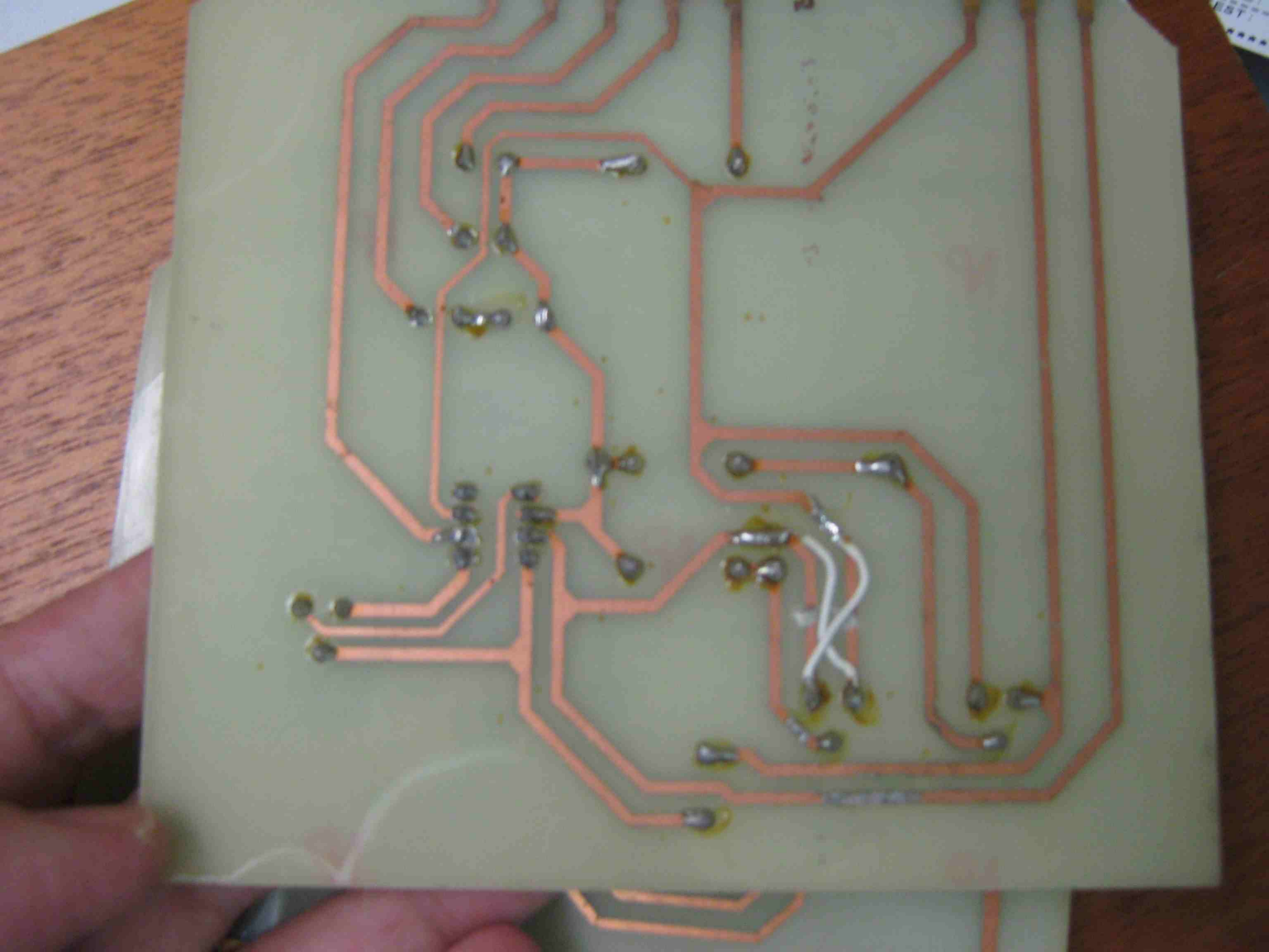
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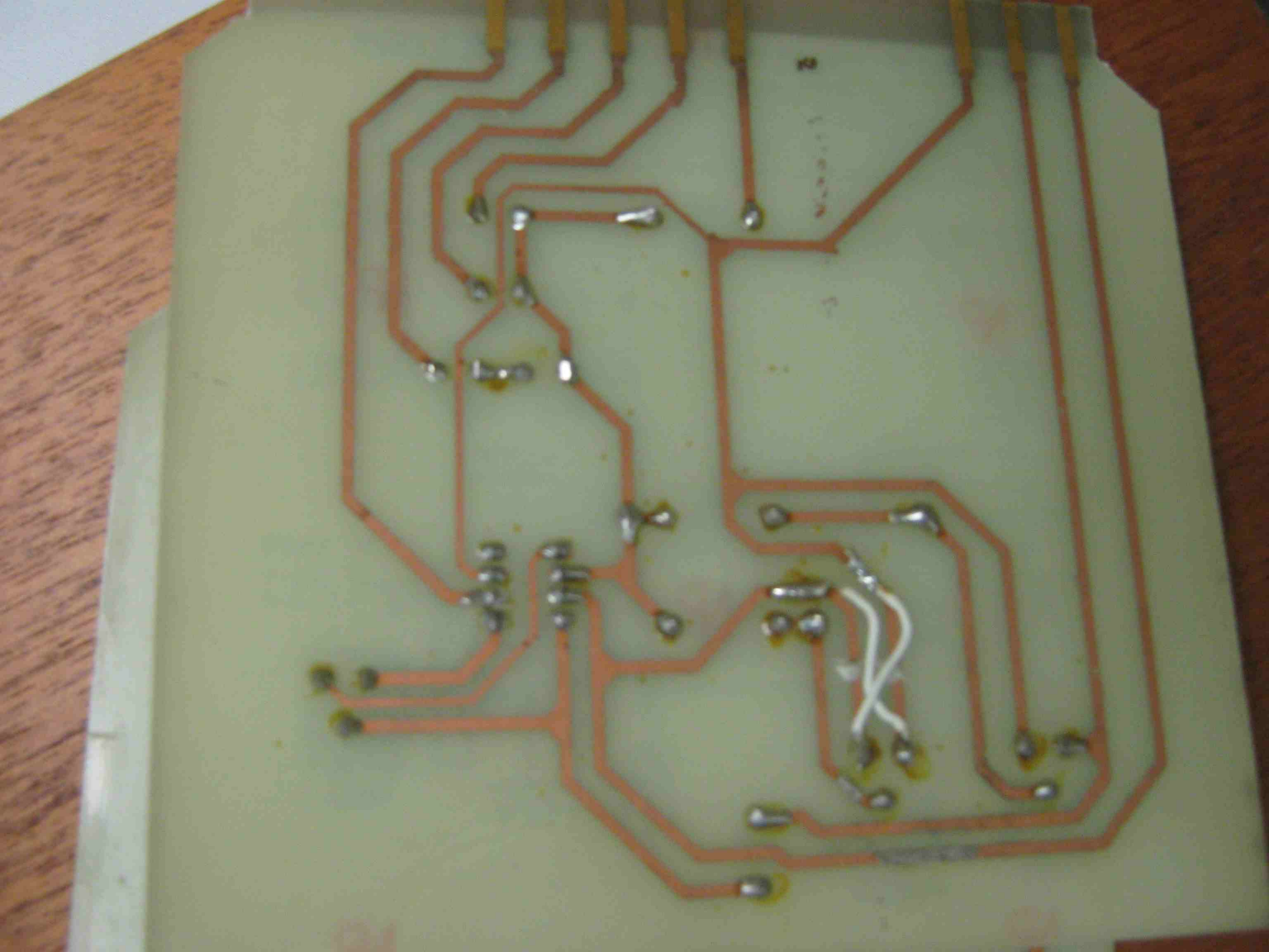
MOTOR INTEGRAL CONTROL





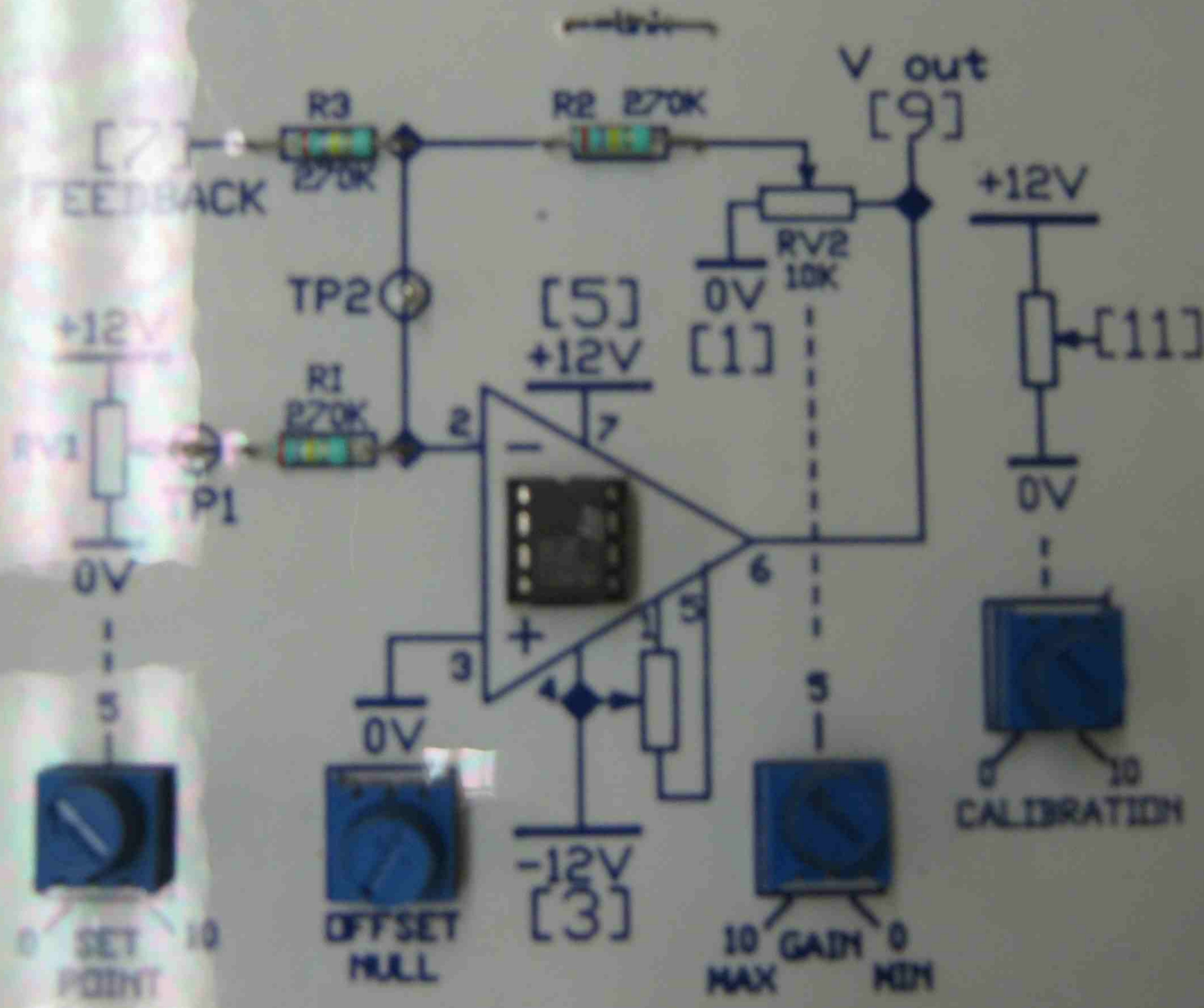




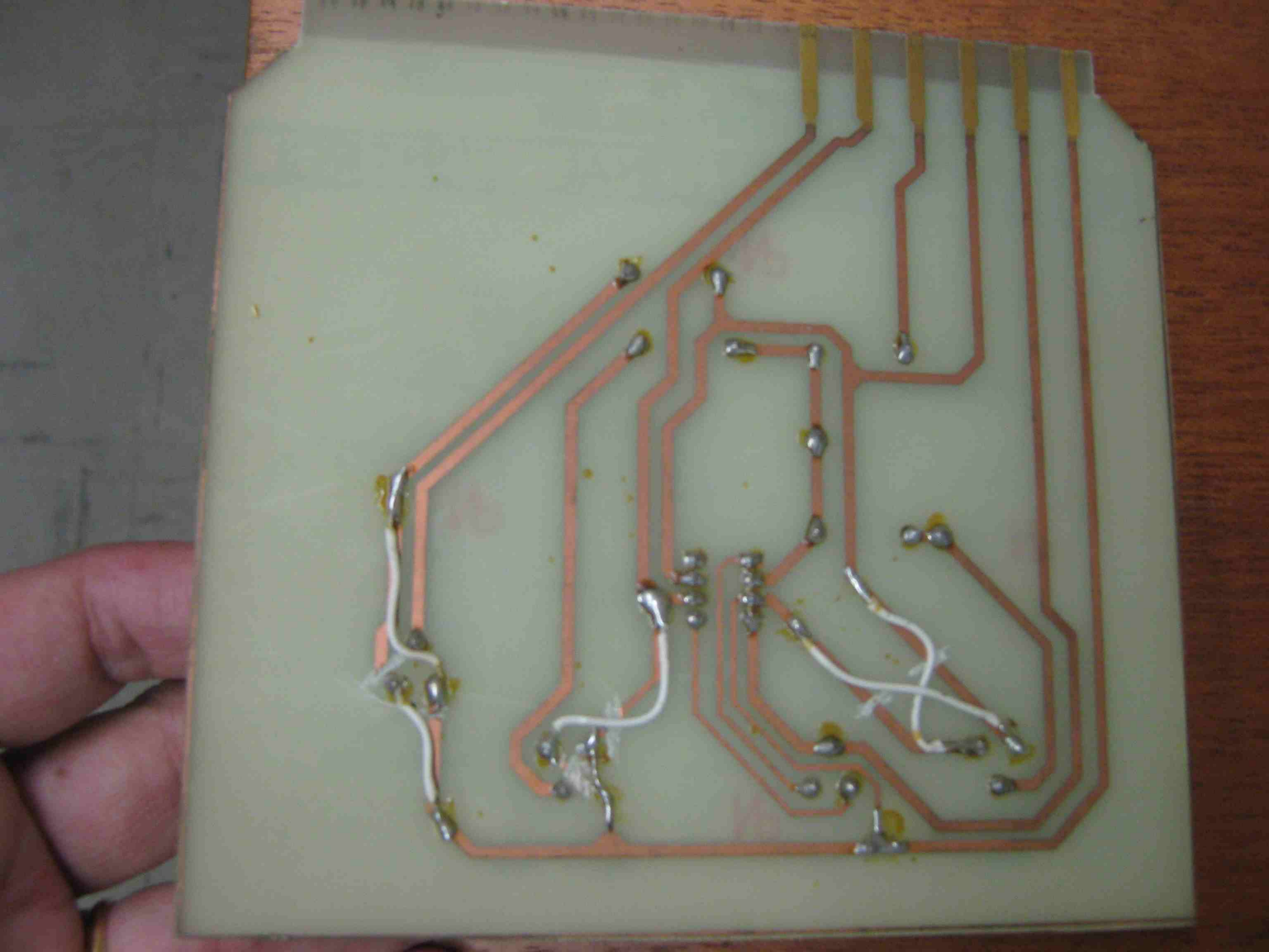




# MOTOR PROPORTIONAL CONTROL



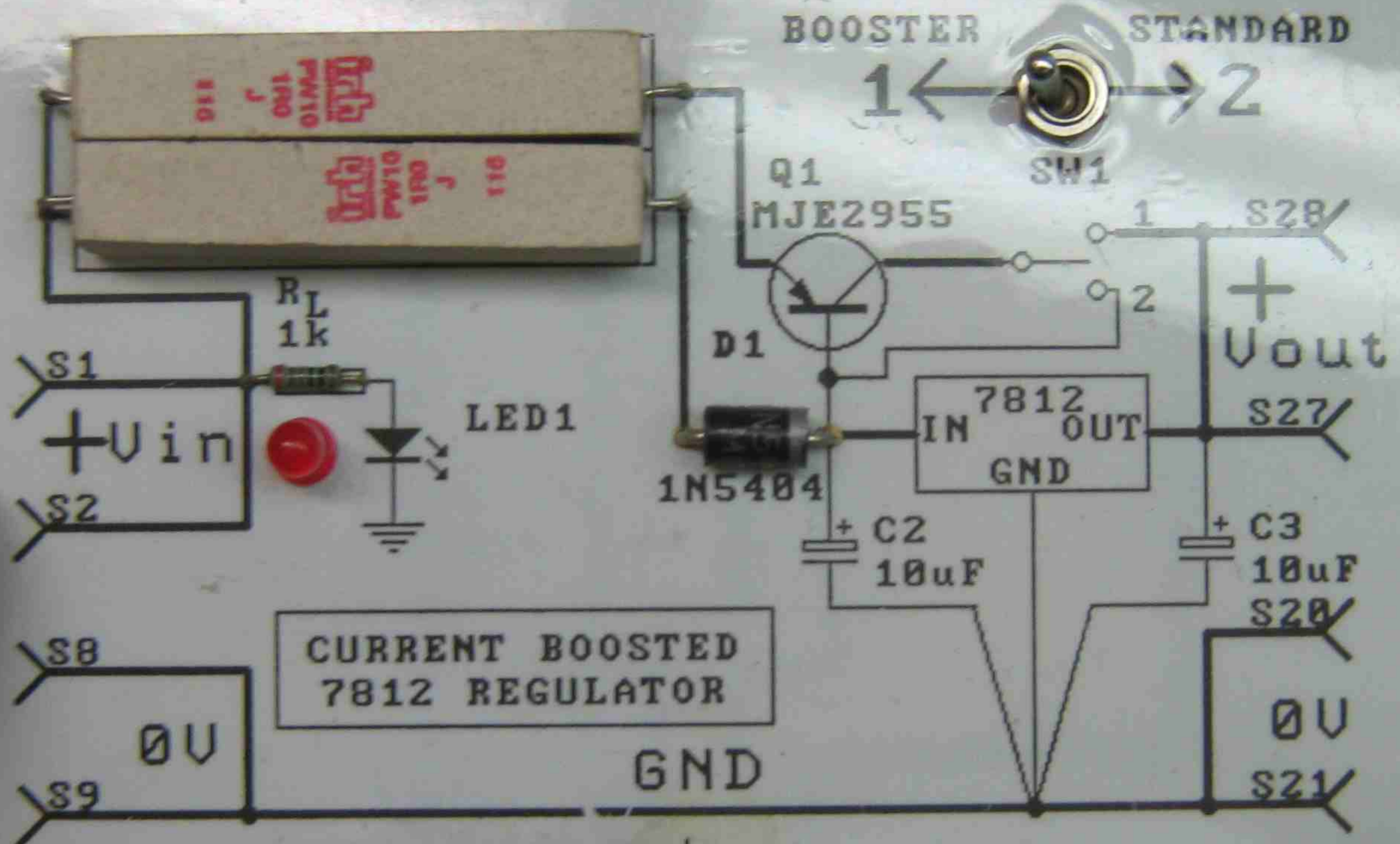






POWER CONTROL 1  
6016D

WEEK-8



CURRENT BOOSTED  
7812 REGULATOR

GND

Vout

0V

0V

GND

0V

0V



INSTRUMENTAL ELECTRONICS DIVISION  
AGUAYGUA, GUATEMALA



R1  
R2

1R0/10W  
1R0/10W

WFEK-8

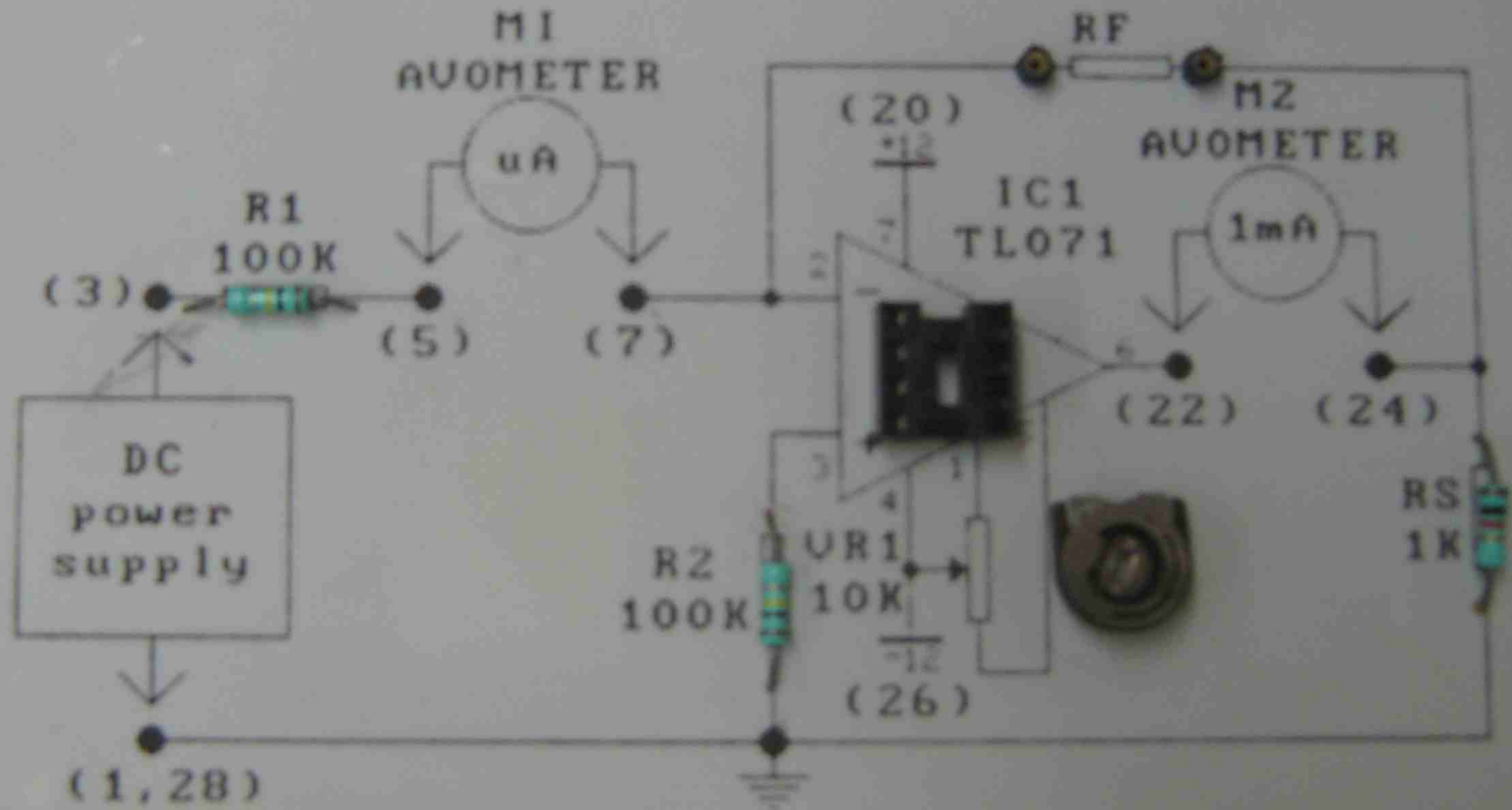
6016D



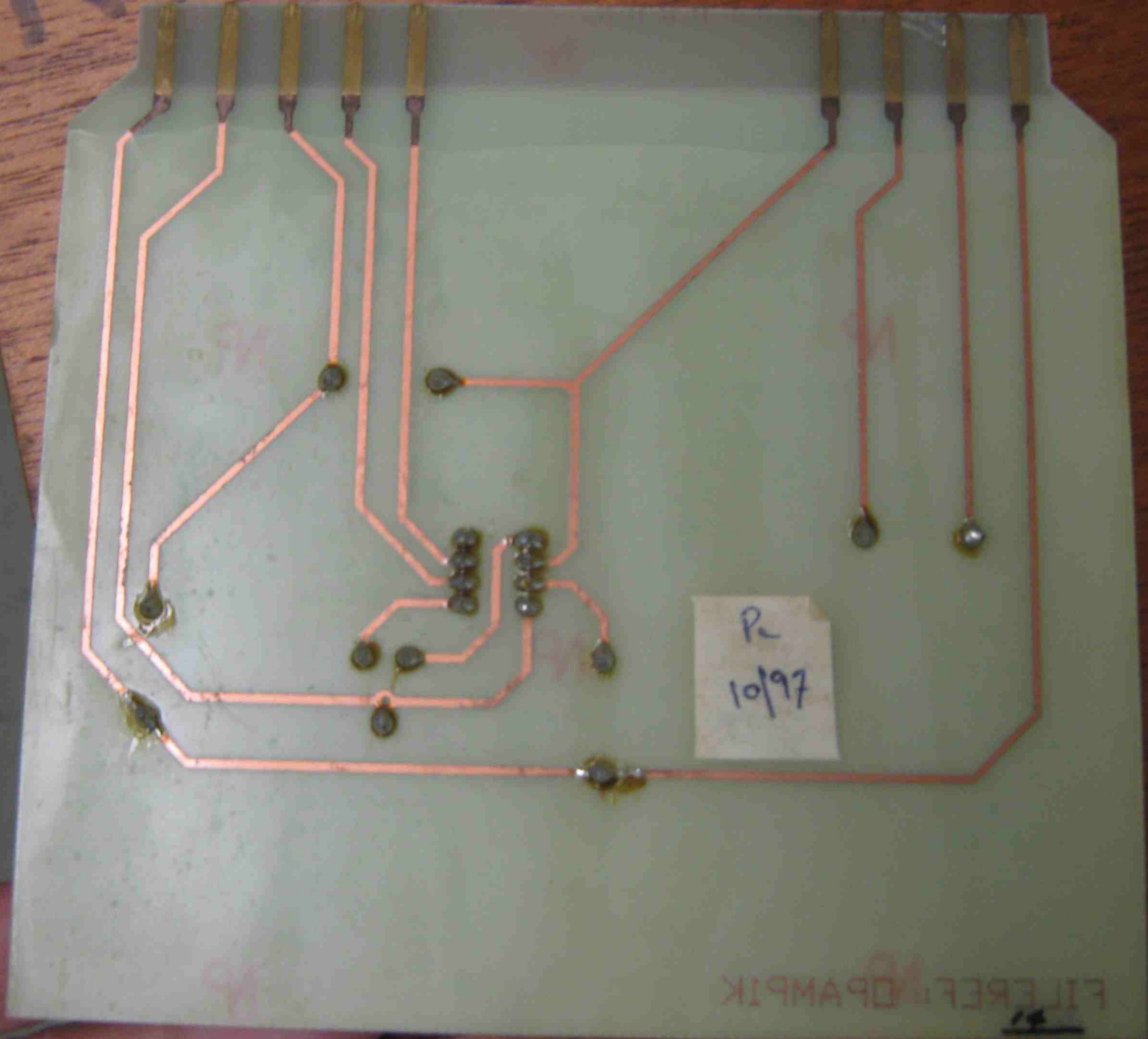


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INDUSTRIAL ELECTRONICS SECTION  
OPERATIONAL AMPLIFIERS WEEK 8

# D.C. MICROAMMETER







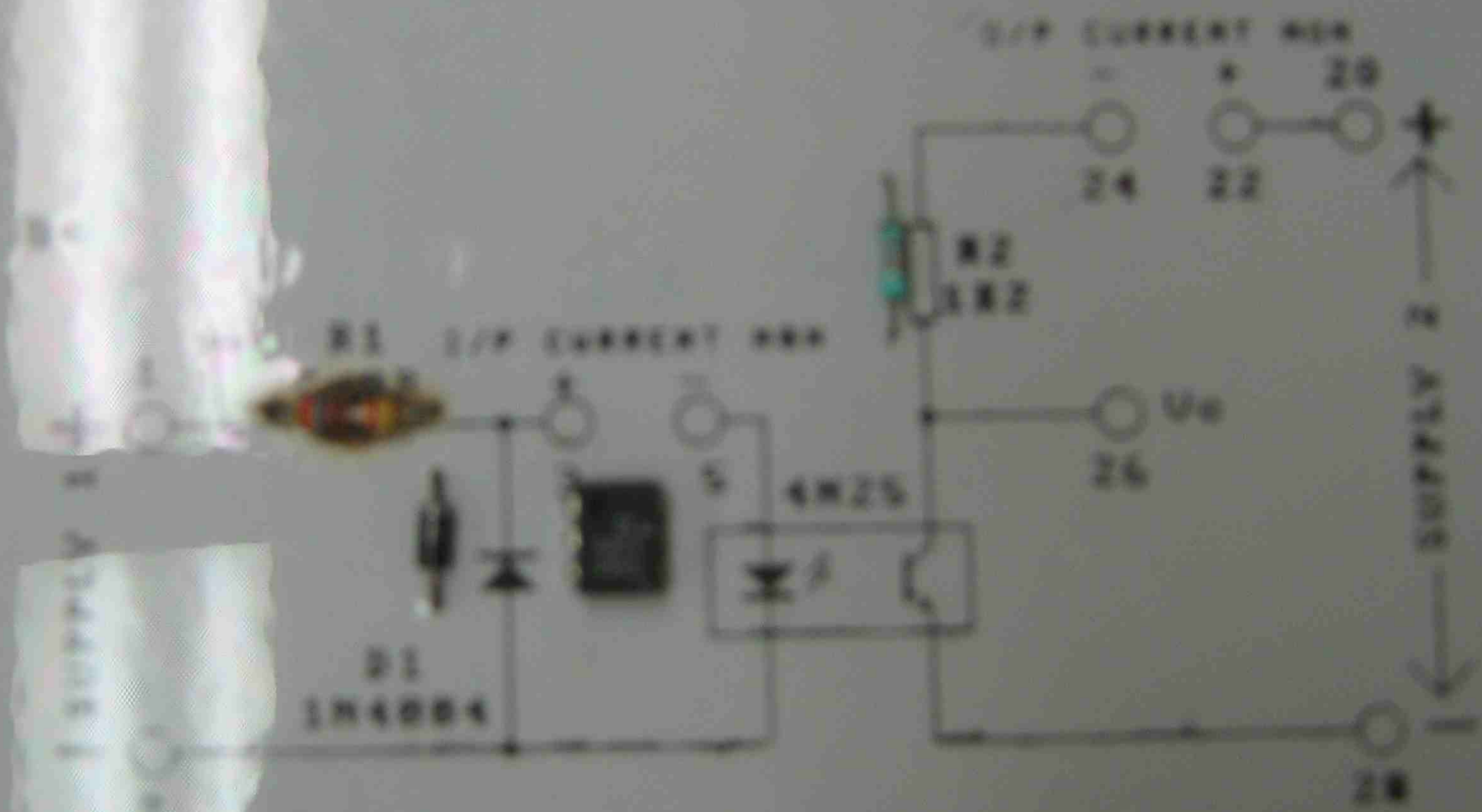
R  
10/97

FILTRER DPAMPIK

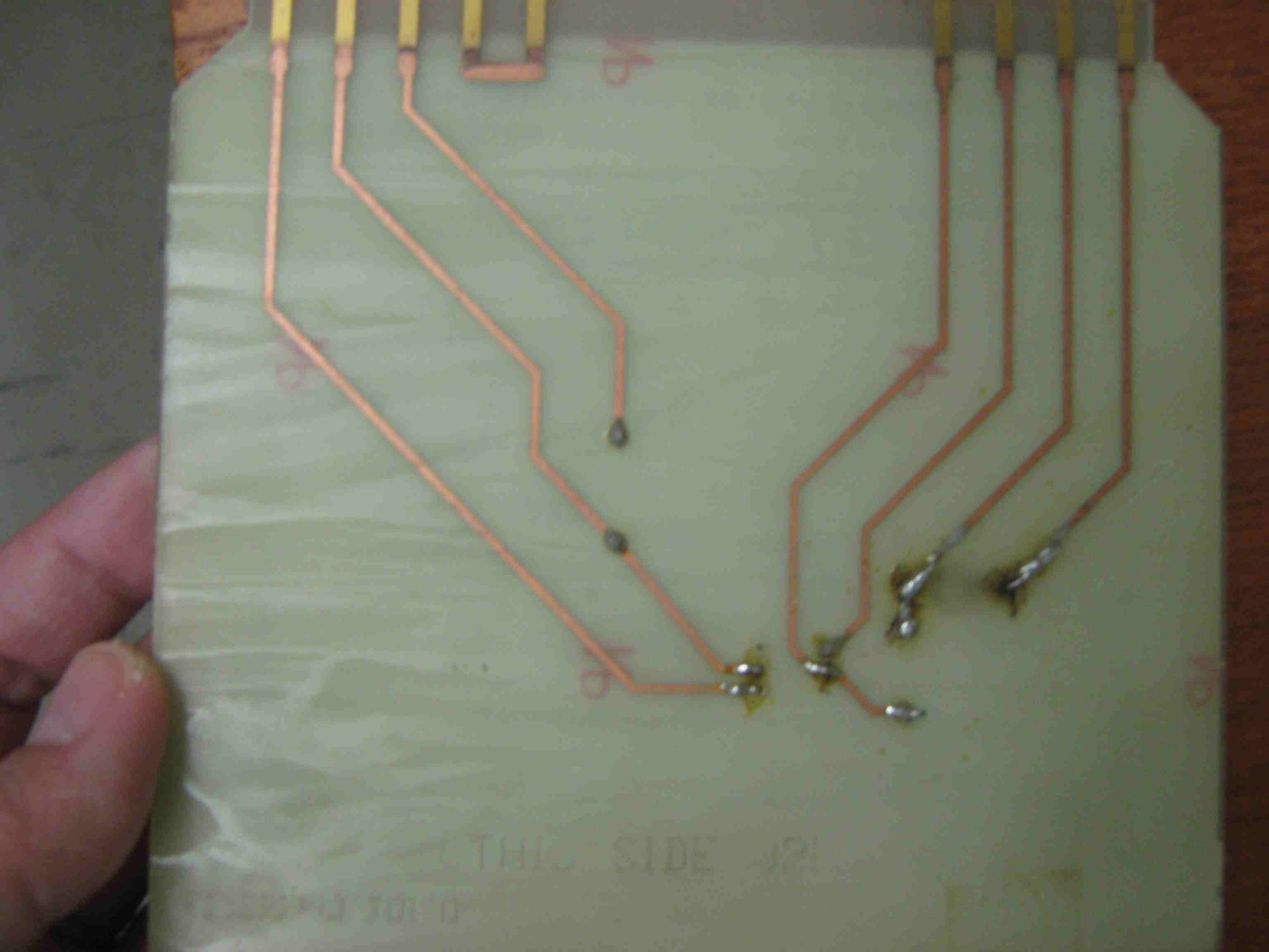


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ENGINEERING SERVICES TRAINING DIVISION  
ELECTROTECHNOLOGY

# OPTOCOUPLER







16

17

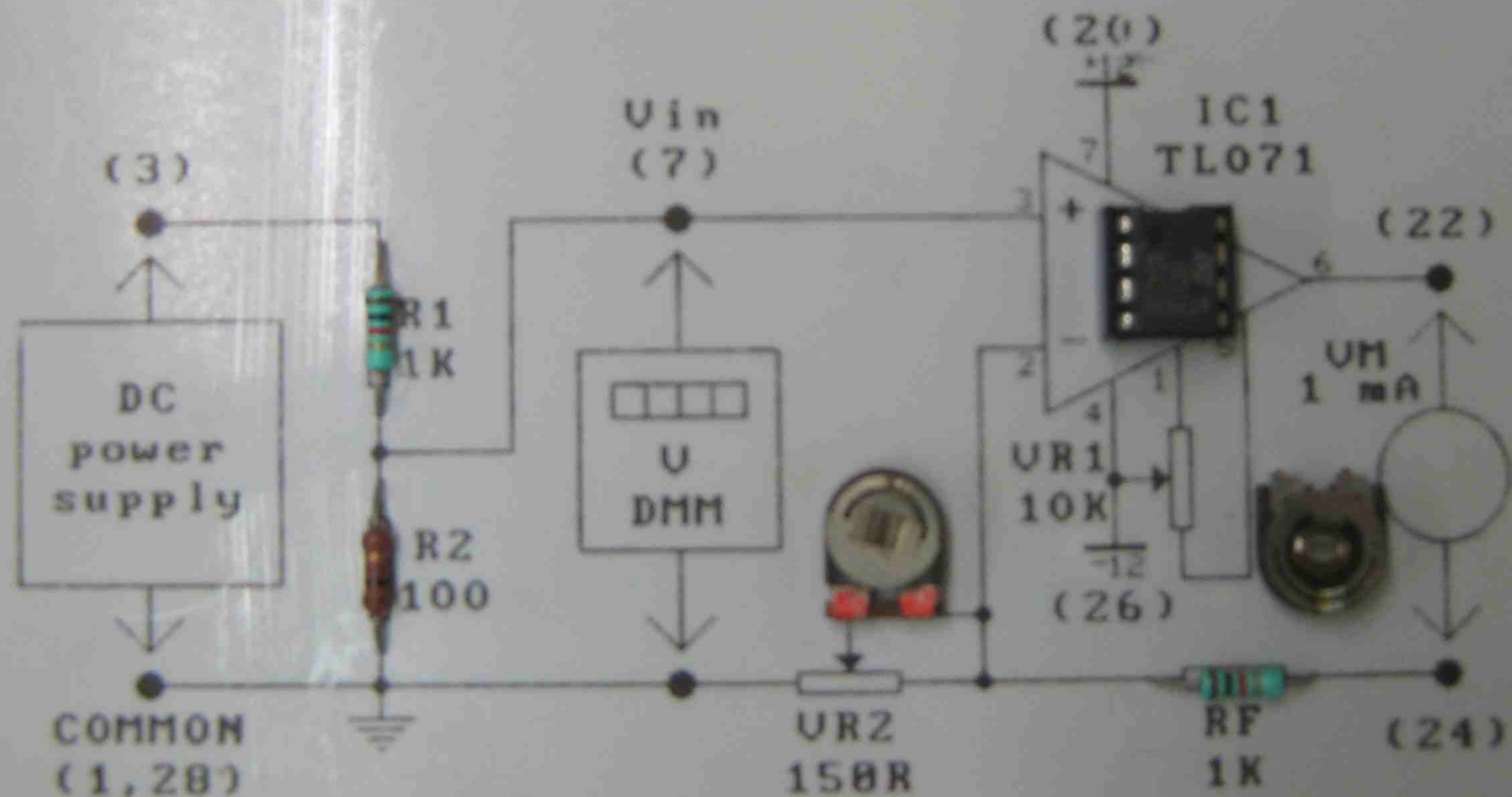
17

THIS SIDE UP

DIP-16



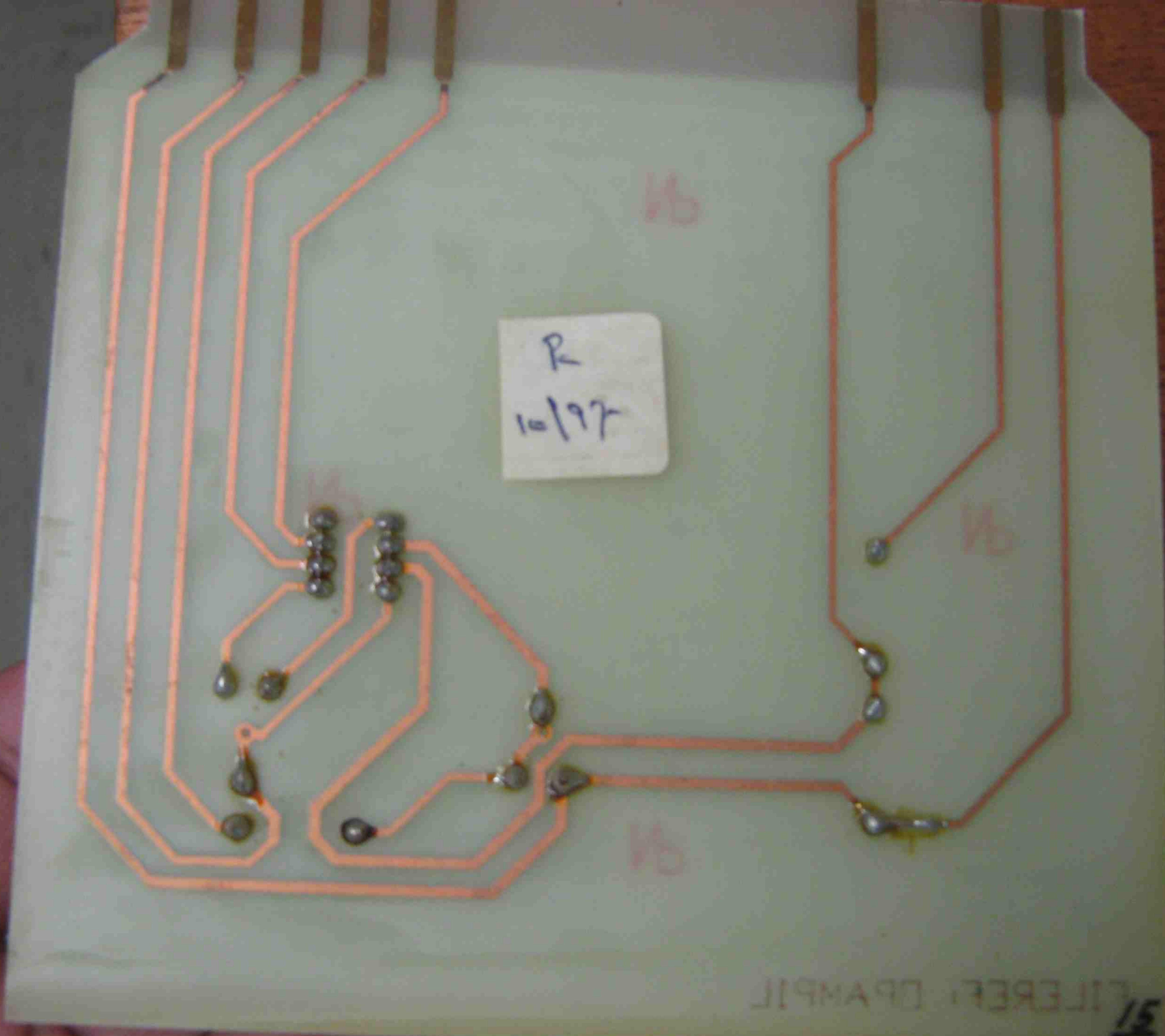
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APPLIED ELECTRICITY INDUSTRIAL ELECTRONICS  
OPERATIONAL AMPLIFIERS 6009C #8  
D. C. MILLIVOLTMETER





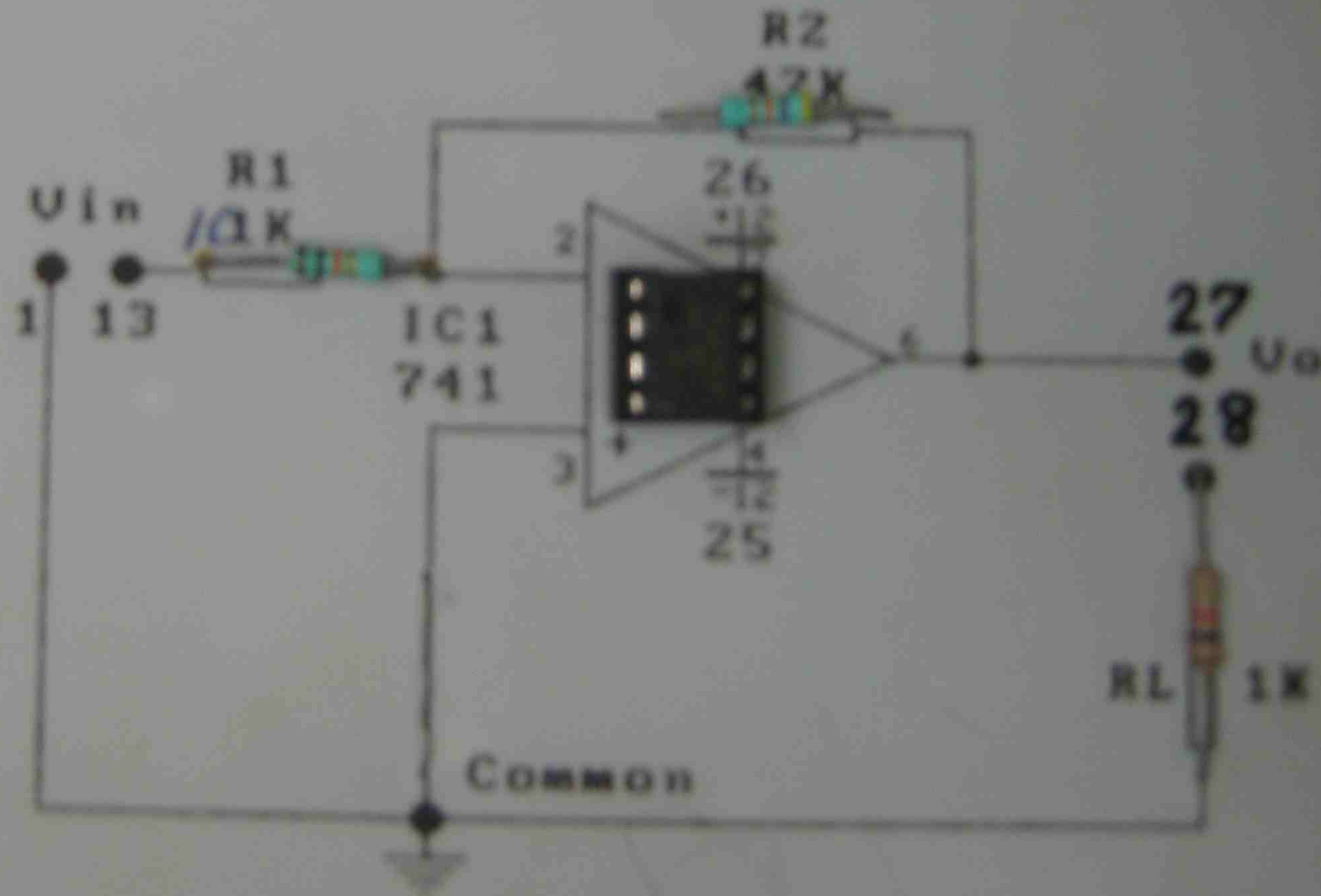
R  
10/97

51  
FILTERED OP AMP 11





## SLEW RATE





P-  
10/97

