

## ETHERNET TRANSCEIVER ELECTRICAL CHARACTERISTICS

### 1.0 Station

#### 1.1 Input:- $\overline{XDATA}$

- 1.11 Resistance: 132 ohms nominal
- 1.12 Logic: Negative ("0" volt) true
- 1.13 Interface: 5 volt TTL compatible

#### 1.2 Outputs:- $\overline{TROTHER}$ & $\overline{TRDATA}$

- 1.21 Type of drive: Open collector
- 1.22 Low state current sinking: 48 ma max.
- 1.23 Logic: Positive ( $\geq 2$  volts) true
- 1.24 Interface: 5 volt TTL compatible

### 2.0 Ether

#### 2.1 Input:- ETHER

- 2.11 Resistance:  $\geq 100k$  ohms
- 2.12 Capacitance:  $\leq 10pf$
- 2.13 Bias current:  $\leq -15ua$
- 2.14 Max. input voltage without damage: +10 volts, -.4 volts

#### 2.2 Output:- ETHER

- 2.21 Drive voltage: +3 volts (Nominal) into 37.5 ohms
- 2.22 Rise & Fall times: 12ns typical
- 2.23 Waveform: Pulse

#### 2.3 Power shut down at output incase of catastrophic failure at output stage.

### 3.0 Transceiver.

- 3.31 Frequency range: 1.3 MHz to 3.3 MHz
- 3.32 Duty cycle range: 30% to 70% or 140 ns whichever is closer to 50%
- 3.33 Waveform: Pulse
- 3.34 Ether ground potential noise immunity: 50 volts DC reducing to 15v peak to peak at 100k Hz
- 3.35 Power requirement: +15 volts  $\pm 2\%$  @ 80 ma (typical)  
+5 volts  $\pm 5\%$  @ 110 ma (typical)
- 3.36 Operating temperature:  $10^{\circ}C$  to  $40^{\circ}C$
- 3.37 Storage temperature:  $0^{\circ}C$  to  $50^{\circ}C$
- 3.38 Size: 2 $\frac{1}{4}$ " H x 4" W x 2 $\frac{1}{4}$ " D

## ETHERNET STATION PARTS LIST

Ckt No.	Mfr*	Part No.	Description
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Resistors are fixed, composition/film, +5%, 1/4 watt unless otherwise indicated.

R1			680 ohm
R2			4.7k
R3			1.8k
R4			2.2k
R5			270
R6			150
R7			680
R8			3.9k
R9			470
R10			470
R11			27k
R12			2.7k
R13			1k
R14			330
R15			220

### Capacitors

C1	E1	DM-19-102J	Mica 1000pf 5% 500v
C2	E1	DM-15-270J	Mica 27pf 5% 500v
C3	Sp	196D106X9020JAL	Tantalum 10uf 10% 20v
C4	Sp	196D106X9020JAL	Tantalum 10uf 10% 20v
C5	Sp	196D106X9020JAL	Tantalum 10uf 10% 20v
C6	Sp	196D106X9020JAL	Tantalum 10uf 10% 20v
C7	E1	DM-15-221J	Mica 220pf 5% 500v

### Inductor

L1			150uH
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### Transformers

T1			Power transformer
T2			Coupling transformer
T3			Coupling transformer

### Semiconductor devices

D1	TI	1N914	Diode
D2	TI	1N914	Diode
Q1	TI	TIP3055	NPN power transistor
Q2	TI	TIP3055	NPN power transistor
IC1	TI	SN75140P	Dual line receivers
IC2	TI	SN7438N	Quad 2-Input + NAND Buffers
IC3	TI	SN7404N	Hex Inverters

## ETHERNET ETHER PARTS LIST

Ckt No.	Mfr	Part No.	Description
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Resistors are fixed, composition/film,  $\pm 5\%$ , 1/4 watt unless otherwise indicated.

R101			1k ohm
R102			680
R103			27
R104			270
R105			150
R106			680
R107			4.7k
R108			10k
R109			1k
R110			4.7
R111			330
R112			1k
R113			1k
R114			1k
R115			3.3k
R116			4.7
R117			1.5k
R118			18k
R119			100
R120			220
R121			1k

### Capacitors

C101	E1	DM-15-270J	Mica 27pf 5% 500v
C102	E1	DM-19-102J	Mica 1000pf 5% 500v
C103	Sp	196D106X9020JA1	Tantalum 10uf 10% 20v
C104	Sp	196D106X9020JA1	Tantalum 10uf 10% 20v
C105	Sp	196D106X9020JA1	Tantalum 10uf 10% 20v
C106	Sp	196D106X9020JA1	Tantalum 10uf 10% 20v
C107	Sp	HY-360	Ceramic 0.1uf 12v

### Semiconductor Devices

CR101	F	1N4610	Diode
CR102	TI	1N914	Diode
CR103	TI	1N4001	Diode
CR104	TI	1N914	Diode
CR105	TI	1N914	Diode

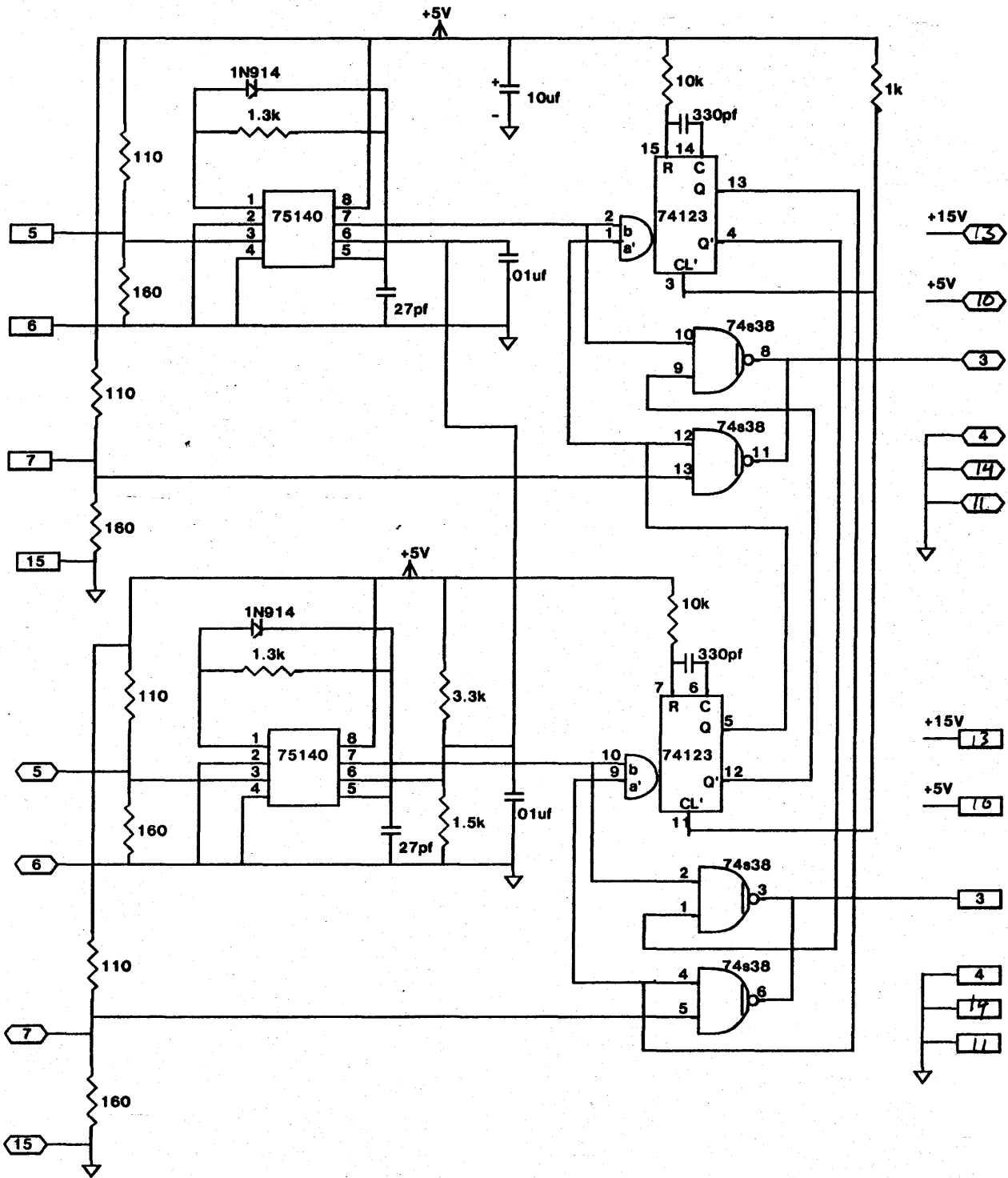
ETHERNET ETHER PARTS LIST

Ckt No.	Mfr*	Part No.	Description
CR106	TI	1N914	Diode
CR107	TI	1N914	Diode
CR108	TI	1N914	Diode
CR109	TI	1N914	Diode
CR110	TI	1N914	Diode
CR111	TI	1N914	Diode
CR112	TI	1N914	Diode
CR113	TI	1N914	Diode
Q101	F	2N5771	PNP transistor
Q102	F	2N4275	NPN transistor
Q103	F	2N4275	NPN transistor
Q104	F	2N4275	NPN transistor
Q105	GE	D43C2	PNP transistor
IC101	TI	SN75140P	Dual line receivers
IC102	Sig	N8T14B	Triple line receivers
LED101	Mon	MV5024	Red light emitting diode

\*Note:

El Elmenco  
 Sp Sprague Electric Co.  
 TI Texas Instruments, Inc. Semiconductor div.  
 F Fairchild Camera & Instrument Corp. Semiconductor div.  
 GE General Electric Co. Semiconductor div.  
 Sig Signetics Corp.  
 Mon Monsanto Co. LED div.







ALTO

ETHERNET EXTERNAL CABLE

1 of 1

6/26/74 DB

Length 40'

SPARE

9

BRN

BLK

XDATA

3

GRN

BLK

TRDATA

5

WHT

BLK

ROTHER

7

BLUE

BLK

+5

10

RED

BLK

+15

13

YEL

BLK

CANNON CABLE: BELDEN 8747

CANNON

QTY

PART

QTY

PART

(1)

DAC-15P SHELL

(1)

DAC-15S SHELL

(1)

DA-51210-1 COVER

(1)

DA-51210-1 COVER

(12)

030-1952-000 PINS

(12)

030-1953-000 PINS

(1)

DA-51220-1 SLIDING LOCK  
RETAINER

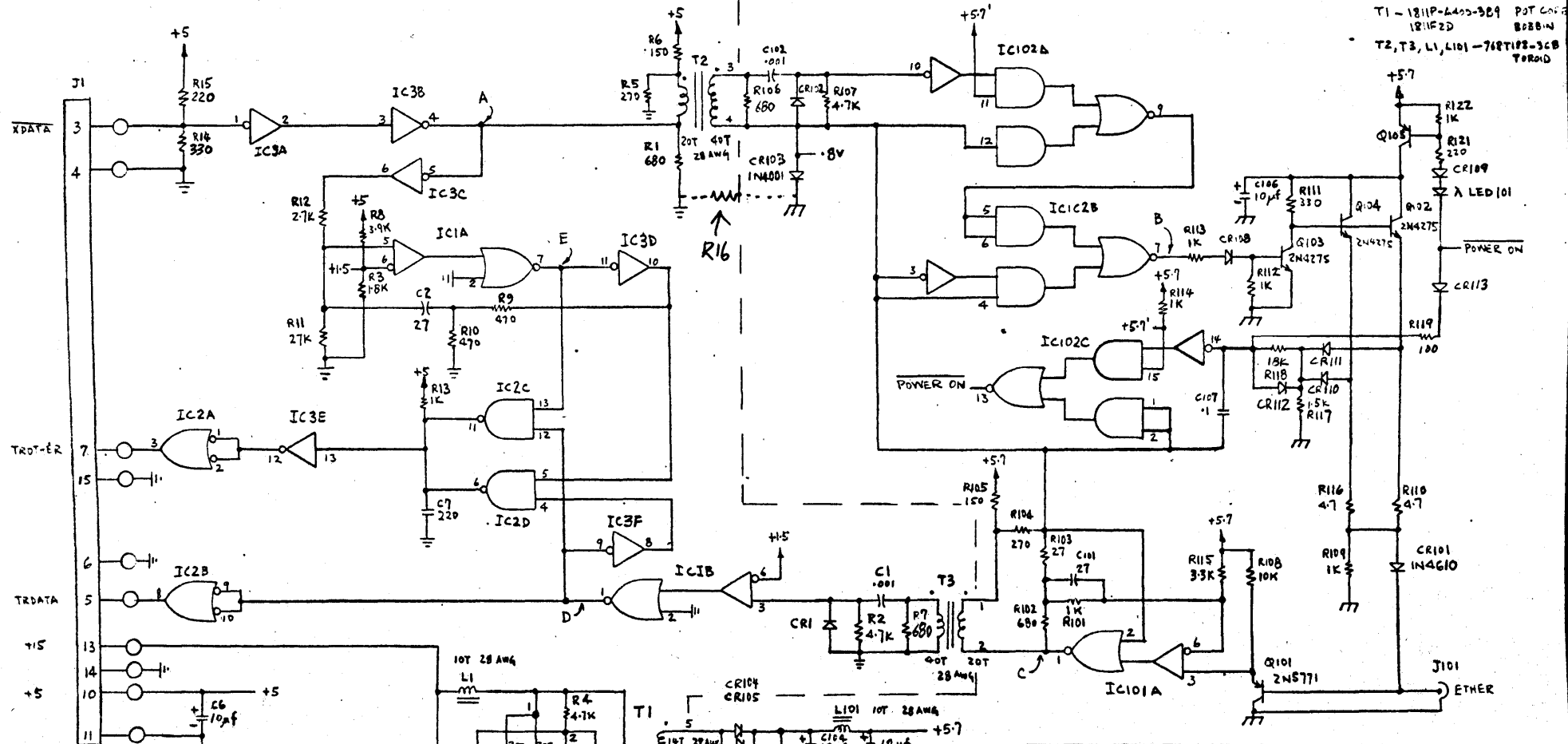
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DA-51220-1 SLIDING  
LOCK RETAINER



STATION ← → ETHER

NOTE 2: TRANSFORMER & INDUCTOR  
CORE MATERIAL  
FERROXUBE #  
T1 - 1811P-4000-309 POT CORE  
1811F2D BOBBIN  
T2, T3, L1, L101 - 76RT102-3CB  
TOROID



NOTE 1: ALL RESISTORS 1/4W 5%  
ALL SIDES IN94 OR EQ.  
IC1-3 Vcc TO +5V GND TO GND  
IC101-102 Vcc TO +6V GND TO +8V  
IC1, 101 - SN75140P  
IC2 - SN7438N  
IC3 - SN7404N  
IC102 - N8T14B

TRANSCIVER SCHEMATIC		
SCALE: —	APPROVED BY:	DRAWN BY T. LAM
DATE: 7-21-74		REVISED 11-18-74
		DRAWING NUMBER