NEW HAMPSHIRE
**Evans Radio**
(P. O. Box 312) Bow Junction
Route 3A
Concord
Phone: Capital 5-3358
Rep: Roger Brillton

NEW JERSEY
Federated Purchaser, Inc.
1021 U.S. Route 22
Mountainside
Phone: Adams 2-3200
Rep: Hal Thorne
Hudson Radio & Television Corp.
35 William Street
Newark 2
Phone: Market 4-5154
Rep: Joseph Prestia

SERVICE AGENCY ONLY:
Warner Engineering Company, Inc.
239 Lorraine Avenue
Upper Montclair
Phone: Pioneer 6-7900
Rep: Charles Abwater

NEW YORK
Adirondack Radio Supply
(P. O. Box 68) 185-191 M. Main Street
Amsterdam
Phone: Victor 2-8350
Rep: Ward Hinkle
Pt. Orange Radio Distributing Co., Inc.
904-14 Broadway
Albany 7
Phone: Albany 5-1594
Rep: Harry Miller
Gennesee Radio & Parts Company
2550 Delaware Avenue
Buffalo 16
Phone: Cleveland 1970
Rep: Martin Feigenbaum
Harrison Radio Corporation
325 Greenwich Street
New York 7
Phone: Barclay 7-7777
Rep: W. E. Harrison/Ben Snyder
Harvey Radio, Inc.
103 W. 43rd Street
New York 18
Phone: Julian 2-1500
Rep: Harvey Sampson/George Tarrin

NORTH CAROLINA
Dalton-Beige Radio Supply Co., Inc.
938 Burke Street
Winston-Salem
Phone: Park 5-8711
Rep: Wayne Telverson

**Freck Radio & Supply Company**
38 Bitmore Avenue
Arlington 5-3631
Rep: T. T. Freck

Southeastern Radio & Supply Co., Inc.
414 Hillsboro Street
Raleigh
Phone: TE 1-1396
Rep: Stanley Kahn

OHIO
Custom Electronics, Inc.
1918 S. Brown Street,
Dayton 9
Phone: Baldwin 3-3157
Rep: Richard Sauer/Clem Woldorf
Pioneer Electronic Supply Company
210 E. 21st Street
Cleveland 15
Phone: Superior 1-3277
Rep: Dick Brubaker/Herb Farr
Selectronic Supplies, Inc.
3185 Bellevue Road
Toledo 6
Phone: Greenwood 4-5477
Rep: D. K. Petty
Steinbergs, Inc.
633 Walnut Street
Cincinnati 2
Phone: Cherry 1-1880
Rep: Jule Burnett

**Universal Service**
114 N. Third Street
Columbus 15
Phone: Capitol 1-2335
Rep: Francis R. Gibb

OKLAHOMA
General Electronics, Inc.
1022 Classen Blvd
Oklahoma City
Phone: FO 5-1446
Rep: Fred F. Zeigner
Radio, Inc.
1000 South Main Street
Tulsa
Phone: Gibson 7-9127
Rep: Ronnie Durham

OREGON
Portland Radio Supply Company
1234 S. W. Stark Street
Portland 5
Phone: Capitol 6-8647
Rep: C. B. Lucas

**Pennsylvania**
George D. Barkey Company
155-157 Penn Street
Reading
Phone: PR 5-4751
Rep: Lee Wendt
Camrador Company
1121 Penn Avenue
Pittsburgh 22
Phone: Express 1-4000
Rep: Harry Kaplan
Radio Electric Service Co. of Pa., Inc.
N. W. Cor. 7th & Arch Streets
Philadelphia 6
Phone: Walnut 5-5840
Rep: Edward Miller

RHODE ISLAND
W. H. Edwards
94-96 Broadway
Providence 3
Phone: Gaspee 1-6158
Rep: Salvatiello

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Butte Radio Supply
(P. O. Box 746) 621 4th Street S.E.
Watertown
Phone: Turner 6-5749
Rep: Sam Burghardt

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Electra Distributing Company
1914 West End Avenue
Nashville 4
Phone: Alpaca 5-8444
Rep: Richard B. Harris
W. & W. Distributing Company
(P. O. Box 436) 644-646 Madison Ave.
Memphis
Phone: Jackson 7-4628
Rep: Mrs. S. D. Woolen, Jr.

TEXAS
**Busacker Electronic Equipment Co.**
1216 W. Clay Street
Houston 18
Phone: Jackson 6-2578
Rep: Garth Johnson
Central Electronics
417 Maple Avenue
Dallas
Phone: Lakeview 6-8975
Rep: Clayton Backer
Crabtree's Wholesale Radio
2608 Ross Avenue
Dallas
Phone: Riverside 8-5961
Rep: R. B. Bryant/Herald Cross

**Electronic Equipment Co., Inc.**
917 Florence Street
Pt. Worth
Phone: ED 6-5951
Rep: R. J. Crump/Ed Seigler

Electronic Equipment & Engineering Co.
805 S. Staples Street
Corpus Christi
Phone: TULIP 5-9271
Rep: Bob Douglas

The Hargis-Austin Company
(P. O. Box 716) 410 Bay Street
Austin
Phone: Greenwood 8-6618
Rep: Mrs. Paul Hargis/Bill Chapman
Howard Radio
1475 Pine Street
Arlene
Phone: Orichard 2-9501
Rep: R. I. Howard

Modern Electronics Company
(P. O. Box 1361) 2800 Broadway
San Antonio
Phone: Capitol 7-7388
Rep: F. R. Holtz
Radio & Television Parts Company
1820 N. Saint Mary's Street
San Antonio 2
Phone: Capitol 7-7503
Rep: Don Fitzsimmon

WASHINGTON
**C & G Radio Supply Company**
206-2 Jefferson Avenue
Tacoma 2
Phone: BROADWAY 2-3181
Rep: Lloyd Norberg
Northwest Electronics Distributors
East 730 First Avenue
Spokane 3
Phone: KE 4-2644
Rep: J. P. McConnell

WISCONSIN
Harris Radio Corporation
399 N. Main Street
Fond du Lac
Phone: Walnut 2-6700
Rep: Harry Sterman/Terry Sterman
Amateur Electronic Supply
3822 West Lisbon Avenue
Milwaukee 8
Phone: West 3-2922
Rep: Larry Sterman
Satterfield Electronics, Inc.
1900 S. Park Street
Madison 5
Phone: Alpine 7-4801
Rep: A. W. Satterfield/Bill Halvut/Don Wendt

**Collins Authorized Service Agencies**

CALIFORNIA
**Henry Radio**
(P. O. Box 64398)
11240 W. Olympic Blvd.
Los Angeles 64
Phone: Gihanite 7-6701
Rep: Bob Rescorla

CONNECTICUT
Huston Electronics
93 Talcott Road
West Hartford 10
Phone: Adams 6-0900
Rep: Bob Rescorla

FLORIDA
**Electronic Supply Co.**
61 N. E. 9th Street
Miami 32
Phone: Fanklin 7-2511
Rep: Frank Gams

**Kinhale Radio Supply**
1710 Grand Central Ave.
Tampa
Phone: 8-6843
Rep: Elmer Kinhale

LOUISIANA
**Radio Parts, Inc.**
807 Howard Avenue
New Orleans 12
Phone: Jackson 2-0217
Rep: Irene A. Levi

MASSACHUSETTS
**Douglas Instrument Lab**
176 Norfolk Avenue
Boston 19
Phone: Highland 5-4936
Rep: H. D. Miller

**Evans Radio**
(P. O. Box 312)
BOW JUNCTION, ROUTE 3A
Concord
Phone: Capital 5-3358
Rep: Roger Brillton

MICHIGAN
**Communication Service Co.**
201 South Lincoln
Charlotte
Phone: 1770-W
Rep: Dart Rystrma

MINNESOTA
**Electronic Center, Inc.**
107 Third Avenue N.
Minneapolis 1
Phone: Filderal 6-8687
Rep: Ward Jensen

MICHIGAN
**Communication Service Co.**
201 South Lincoln
Charlotte
Phone: 1770-W
Rep: Dart Rystrma

MINNESOTA
**Electronic Center, Inc.**
107 Third Avenue N.
Minneapolis 1
Phone: Filderal 6-8687
Rep: Ward Jensen

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Rep: Charles Abwater

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Phone: Jackson 6-2578
Rep: Garth Johnson

WASHINGTON
**C & G Radio Supply Co.**
912 S. Jefferson Avenue
Tacoma 2
Phone: BROADWAY 2-3181
Rep: Lloyd Norberg

*SERVICE AGENCY ONLY*

*ALSO AUTHORIZED DISTRIBUTOR*
136C-1
NOISE BLANKER

520 5883 00
3rd EDITION, 1 JANUARY 1960

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CEDAR RAPIDS, IOWA, U.S.A.

1.1 DESCRIPTION.

Figure 1 shows the 136C-1 installed in the 75A-4 Receiver. The 136C-1 converts noise to bias pulses for gating the receiver off during noise bursts. This minimizes receiver output noise when it is a result of radiated noise present on both the blanker and receiver antennas. The noise blanker must be provided with its own separately tuned, 40-mc antenna. The noise blanker antenna should be as good at 40 megacycles as a logical compromise allows. Attempts to use an antenna which is sharply resonant at the communication channel frequency will result in unsatisfactory operation of the noise blanker. The 40-mc performance of such an antenna is poor. A six-foot, quarter-wave, coaxial-fed whip will perform best.

The noise blanking scheme has three limitations which decrease the blanking efficiency. These are:

a. One premise upon which the noise blanker was designed is that a noise burst occurring in the high-frequency portion of the spectrum will have some energy distribution at 40.0 mc. If this 40-mc energy distribution does not occur, the blanker will not operate to gate out the interfering noise.

b. A very strong 2.955 to 3.155-mc signal in the pass band between the first and second mixers can be modulated by blanking pulses. This modulation will cause sidebands in the pass band, which result in increased noise and decreased blanking efficiency. Under adverse conditions, this effect can be bad enough to degrade the receiver signal-to-noise ratio when the blanker is turned on. This effect appears to be inherent in any gating-type system.

c. Some corona noise and static disturbances have a repetition rate in excess of one hundred thousand pulses per second. The blanking efficiency decreases as the repetition rate exceeds five thousand pulses per second.
Figure 2. 136C-1 Noise Blanker, Block Diagram
2.1 INSTALLATION PROCEDURES.

2.1.1 INSTALLATION.

a. Remove bottom plate from 75A-4.
b. Remove the blank chassis plate located at the rear of the vfo. Save the mounting hardware.
c. Mount the 136C-1 Noise Blanking in this area with the power supply next to the rear wall of the cabinet. Use the mounting hardware from the discarded plate to secure the noise blanker in place.
d. Modify the connections on terminal board E1 as shown in detail B, figure 5, installation drawing.
e. Solder a bus jumper from terminal 2 of E1 to ground. Feed the antenna lead from the 136C-1 through the hole in the chassis wall as shown in the bottom view, figure 5, and solder to terminal 1 of E1. Ground the shield as shown in detail B, figure 5.
f. Remove the rubber grommet from the hole in the chassis wall next to L22. Remove the lead between C56 and R114. Feed the VIF (variable intermediate frequency) input and VIF output leads from the 136C-1 through the hole in the chassis wall. Solder the VIF output to the tie point at R114. Ground the shield to the terminal strip and connect the 47K resistor (part number 745 0809 00) from the junction of R114 and the noise blanker VIF output to ground.
g. Mount the terminal strip (part number 306 2220 00) on the chassis wall. Use the set of hardware nearest the horizontal surface of the chassis. Connect the VIF input from the 136C-1 to the terminal strip as shown in the bottom view, figure 5. Connect the 1000 mmf capacitor (part number 913 3009 00) from the VIF input to the ungrounded terminal of L22.
h. Feed the two black leads from the power transformer of the 136C-1 through the hole in the chassis wall. Solder one lead to the unfused side of the a-c power cord. Solder the other lead to the primary side of the 75A-4 power transformer. Note: the primary side of the noise blanker power transformer connects in parallel with the primary side of the 75A-4 power transformer. The black leads from the 136C-1 are the primary leads.
i. Feed the white and orange wire from the 136C-1 through the hole in the chassis wall and solder to the empty terminal near C137. Connect the .01 mfd capacitor (part number 913 3013 00) from the white and orange wire to ground. Connect the 68K resistor (part number 745 0185 00) from the junction of R97 and C137 to the junction of the white and orange wire and the .01 mfd capacitor as shown in detail A, figure 5.
j. Remove the knob from the noise limiter control R67. Disconnect the leads and components from the control and note the location of each lead. Remove the control from the front panel and install the noise blanker gain control (10K variable resistor, part number 376 7628 00) and the solder lug (part number 304 0139 00) as shown in detail C, figure 5. Use the mounting hardware and knob from the noise limiter control to mount the new control. Make the solder connections to the new control as shown in detail D, figure 5.
k. Feed the white and green wire and the two white and blue wires from the 136C-1 through the hole in the chassis wall. Dress the wires along the chassis wall to the front of the 75A-4. Feed the wires between the gear plate and the front panel of the radio to the noise blanker gain control as shown in detail D, figure 5. Connect the white and green wire to the noise blanker gain control and the white and blue wires to the switch as shown in figure 5. Either white and blue wire can be connected to either switch terminal.
l. Remove V12 (6AL5) from its socket. (Do not replace this tube.) Connect a bus jumper from pin 2 to pin 7 of tube socket XV12.

2.1.2 REALIGNMENT OF 75A-4 VARIABLE I-F CIRCUITS WITH TEST EQUIPMENT.

After installation of the noise blanker, variable i-f circuits should be peaked up. Refer to figure 5-2 in the 75A-4 Instruction Book for location of alignment adjustments. A better alignment will result if signal generator and vtm are used. If these instruments are not available, alignment according to paragraph 2.1.3 will be satisfactory. For instrument alignment, proceed as follows:

a. Connect an amplitude modulated signal generator to the antenna input through a 100-ohm dummy antenna. Connect the vtm to the A/V test point on the 75A-4 chassis.
b. Set AM CW-SSB switch to AM, AUDIO GAIN to maximum, and RF GAIN to maximum. Select 3 KC mechanical filter.
c. Set receiver dial and signal generator to 1.6 mc. Set signal generator for 20 microvolts output. Rock signal generator dial to produce vtm peak indication. This centers the signal generator frequency in the mechanical filter pass band. Adjust tuning slugs L-18, L-22, and T-1 for maximum output indication on the vtm.
d. Set receiver dial and signal generator to 2.4 mc. Rock signal generator dial to produce vtm peak indication. This centers the signal generator frequency in the mechanical filter pass band. Adjust trimmer capacitors C-7, C-53 and C-56 for peak vtm indication.
e. Repeat steps c and d until no further increase in output is produced.

2.1.3 REALIGNMENT OF 75A-4 VARIABLE I-F CIRCUITS WITHOUT TEST EQUIPMENT.

Refer to figure 5-2 in the 75A-4 Instruction Book for locations of alignment adjustments. If no signal generator and vtm are available, realign the variable i-f circuits as follows:

a. Set OFF-STANDBY-ON-CAL switch to CAL position. Set BAND CHANGE switch to the 160 meter band. Set the AM CW-SSB switch to AM. Set RF GAIN control to maximum clockwise position.
b. Tune the calibrate signal to produce a maximum S-meter reading at 1.6 mc. Adjust tuning slugs L-18, L-22, and T-1 for peak S-meter indication.
c. Tune the calibrate signal to produce a maximum S-meter reading at 2.4 mc. Adjust capacitors C-7, C-53, and C-56 for peak S-meter indication.
d. Repeat steps b and c until no further increase in S-meter indication is produced.

2.1.4 TWEET TRAP ADJUSTMENT.

Whenever the variable i-f circuits of the 75A-4 are re-aligned, the tweet trap (L23-C140) should be retuned. A third-order tweet appears at 3.533 mc in the 80-meter band. It is caused by the 5.7-mc crystal beating with the second harmonic of the vfo at mixer V5. Refer to figure 5-2 in the 75A-4 Instruction Book for location of L23.

a. Turn the AM CW-SSB switch to CW-SSB and tune in the tweet near 3.533 mc.
b. Adjust the core of L-23 until the tweet level is minimum.

3.1 OPERATION.

Pull the noise blanker gain knob to turn on the blanker. Turn the blanker gain control clockwise until the noise level indicated on the receiver S-meter drops sharply. This is the threshold point of most efficient blanker operation. Additional blanker gain is not desirable, and may degrade performance under some operating conditions. Operation may be improved by reducing the 75A-4 r-f gain slightly. If the blanker fails to reduce the noise level, turn it off. This repetition rate of the noise pulses may be too rapid for the blanker to gate, or a strong adjacent channel carrier may be causing erratic blanking.

4.1 CIRCUIT DESCRIPTION.

Figure 2, a block diagram of the 136C-1, illustrates the noise blanking scheme, along with figure 6, schematic diagram of the 136C-1. Tube sections V1A, V2A, and V3A are connected as a three-stage, cascade, 40-mc tuned r-f amplifier. Gain of the trf amplifier is controlled by potentiometer R4 in the cathode circuit of V2A. The output of V3A is limited by the action of diode CR8 and V3A. The positive component of the signal is clamped to the cathode of V3A. The signal is detected by CR1 and filtered by C11. The combination of C11 and R34 determines the length of the blanking pulse. The audio component of the noise is limited by CR2 and applied to the grid of the first pulse amplifier V3B. Positive-going output pulses from V3B are applied to the grid of V2B. Negative portion of the waveform is clipped by CR4. Positive-going square pulses from V1B plate are applied through CR7 to the center tap of T1. The bias of CR7 keeps it cut off and at a high impedance to the low-level pulses, but high-level pulses overcome the bias and pass into the gate circuit. Gating diodes CR5 and CR6 are biased to conduction for normal noise-free operation. However, when a high-amplitude noise burst occurs, the positive-going pulse passes through CR7 and cuts off both CR5 and CR6. This effectively disconnects the variable i-f signal for the period of the blanking pulse. The length of the blanking pulse varies from a few microseconds to a maximum of 30 microseconds. Blanking pulse length is governed by the magnitude of the noise pulse appearing at the noise blanker antenna. Lower amplitude noise bursts in the variable i-f develop shorter blanking pulses, while higher amplitude noise bursts develop longer blanking pulses. Transformers T1 and T2 and the gating diodes are arranged in a balanced modulator configuration so that any noise which results from the gating action is canceled and prevented from entering the receiver circuits. Any discontinuity of signal resulting from the gating action is compensated by tuned-circuit restoration in the following stages of the receiver. Both sections of V4 serve to isolate the noise-operated gate circuit from the receiver circuits. V4A provides only enough gain to compensate for the small loss in the gate circuit, so that over-all gain through the noise blanker is approximately unity. Filament power, B+ power, and bias voltage are provided by the power supply included with the 136C-1.

5.1 SERVICE INSTRUCTIONS.

The blanker is aligned at the factory and will not need realignment when installed in the 75A-4. Tubes may be replaced in the noise blanker without necessity of re- alignment or readjustment. However, if major repairs are made to the blanker, it should be realigned.

Test equipment necessary for r-f alignment and gate balance adjustments of the 136C-1 consists of a signal generator, with calibrated output, capable of 40.0-mc operation; a vacuum-tube voltmeter, with r-f probe; and a noise source. An ordinary doorbell buzzer or electric razor makes an excellent noise source for adjusting the 136C-1.

5.1.1 R-F ALIGNMENT.

a. Connect a signal generator with a 50-ohm output impedance (such as a Measurements Corporation Model 80) to the coax marked ANT (blanker r-f input). Set the generator output to 200 microvolts.
b. Set the vtm to a low scale and zero meter. Connect it between detector test point and ground.
c. Set the signal generator output at 40.0 mc (unmodulated) and increase the generator output until a reading is obtained on the voltmeter. If a full scale deflection results with less than 200 microvolts input signal on a 0 to 1 volt scale the blanker r-f amplifier may be oscillating. The blanker receiver is designed for broadband operation; if the coils are sharply peaked, oscillation can result. If this happens, detune L3 or L4 until oscillation ceases.
d. Adjust L1 and L4 for maximum reading on the vtm. Reduce generator output as necessary to keep the voltmeter reading between 9 and -1 volt d-c.
e. Set the signal generator to 40.3 mc and peak L3.
f. Set the signal generator to 39.7 mc and peak L2.
g. Repeat the alignment of L1, L2, L3, and L4 to assure optimum band pass. When the generator frequency is moved from 41 mc to 39 mc the detector output voltage read on the voltmeter should vary smoothly from a maximum at 40 mc to a smaller value on either side. Any peaks between 41 and 39 mc
indicate oscillation. If this occurs, reheat L2 at 39.5 mc and L3 at 40.5 mc.

5.1.2 GATE BALANCE.

a. Disconnect the 75A-4 antenna.
b. Leave the noise blanker antenna connected and the 75A-4 on. Turn the noise source on and couple loosely to the noise antenna.
c. Adjust the gate balance potentiometer R30 and variable capacitor C24 for minimum noise output from the 75A-4 speaker. These two adjustments are interactive. First adjust one and then the other until neither produces any appreciable reduction in output noise.

5.1.3 VOLTAGE AND RESISTANCE MEASUREMENTS.

a. Table 1 lists the d-c voltage and resistance measurements on all tube sockets of the 136C-1. Values are nominal.
b. All measurements were made with a vtvm with all tubes in sockets.
c. Resistances of less than one ohm are listed as zero.
d. All measurements are made from socket pin to ground.
e. Double values of resistance on pins 1 and 9 of V2 and pins 7 and 9 of V3 are caused by diodes in the circuit and the polarity of the ohmmeter used.

<table>
<thead>
<tr>
<th>TUBE</th>
<th>PIN NUMBER</th>
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<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>V1</td>
<td>60</td>
</tr>
<tr>
<td>OHMS</td>
<td>50K</td>
</tr>
<tr>
<td>V2</td>
<td>90</td>
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<td>OHMS</td>
<td>60K</td>
</tr>
<tr>
<td>V4</td>
<td>120</td>
</tr>
<tr>
<td>OHMS</td>
<td>20K</td>
</tr>
</tbody>
</table>

*Maximum r-f gain  
**Minimum r-f gain

6.1 SPECIFICATIONS.

Power source . . . . . . . . . . . . . . . 136C-1 has a separate power supply mounted on the noise blanker chassis.

Frequency range . . . . . . . . . . . . . . The blanking gate of the noise blanker passes i-f signals in the range of 1.5 to 4.0 mc in the 75A-4. The input frequency of the noise blanker is 40.0 mc with a minimum bandwidth of 1 mc and a maximum bandwidth of 2 mc.

Cross modulation . . . . . . . . . . . . . . The noise blanker causes no more than 6 db deterioration in cross modulation and/or blocking characteristics of the companion receiver.
Sensitivity

A pulse signal input to the noise blanker input of 100 microvolts peak will cause a minimum of 35 db reduction of gain in the receiver signal path.

Spurious response

Internal noise and signals introduced by the noise blanker are less than 1.0 microvolt equivalent signal.

Input impedance

Noise blanker amplifier; 50-ohm nominal ±50% unbalanced.

Output impedance

Signal blanking circuit; High impedance.

Controls

Installation of a noise blanker in a 75A-4 requires the addition of a blanker r-f gain control with a push-pull on-off switch (furnished with kit).

Tube complement functions

Three r-f noise and pulse amplifiers. One input and output amplifier.

Size

3 in. x 6-1/2 in. x 4-1/2 in.

Mounting center

4-1/2 in. x 3 in.

Weight

2-3/4 lb.

PARTS LIST

Following is the parts list for the 136C-1. Figure 3 is the top view. Figure 4 is the bottom view showing location of components.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>COLLINS PART NUMBER</th>
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</thead>
<tbody>
<tr>
<td>136C-1 NOISE BLANKER</td>
<td></td>
<td>522 1584 00</td>
</tr>
<tr>
<td>C1</td>
<td>CAPACITOR, FIXED, MICA: 10 uuf, ±10%, 500 v dc</td>
<td>912 0432 00</td>
</tr>
<tr>
<td>C2</td>
<td>CAPACITOR, FIXED, CERAMIC: 1000 uuf, ±10% -20%, 500 v dc</td>
<td>913 3009 00</td>
</tr>
<tr>
<td>C3</td>
<td>CAPACITOR, FIXED, CERAMIC: same as C2</td>
<td>913 3009 00</td>
</tr>
<tr>
<td>C4</td>
<td>CAPACITOR, FIXED, MICA: 510 uuf, ±10%, 300 v dc</td>
<td>912 0546 00</td>
</tr>
<tr>
<td>C12</td>
<td>CAPACITOR, FIXED, CERAMIC: 22,000 uuf, ±10% -20%, 500 v dc</td>
<td>913 3014 00</td>
</tr>
<tr>
<td>C13</td>
<td>CAPACITOR, FIXED, CERAMIC: same as C2</td>
<td>913 3009 00</td>
</tr>
<tr>
<td>C14</td>
<td>CAPACITOR, FIXED, MICA: 1000 uuf ±10%, 500 v dc</td>
<td>912 3216 00</td>
</tr>
<tr>
<td>C15</td>
<td>CAPACITOR, FIXED, ELECTROLYTIC: aluminum, 6 uf, -15% -100%, 6 v dc</td>
<td>183 1167 00</td>
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<tr>
<td>C16</td>
<td>CAPACITOR, FIXED, CERAMIC: 10,000 uuf, -10% -20%, 500 v dc</td>
<td>913 3013 00</td>
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<td>913 3014 00</td>
</tr>
<tr>
<td>C18</td>
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<td>913 3009 00</td>
</tr>
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<td>C19</td>
<td>CAPACITOR, FIXED, CERAMIC: same as C16</td>
<td>913 3013 00</td>
</tr>
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<td>913 3009 00</td>
</tr>
<tr>
<td>C21</td>
<td>CAPACITOR, FIXED, CERAMIC: same as C16</td>
<td>913 3013 00</td>
</tr>
<tr>
<td>C22</td>
<td>CAPACITOR, FIXED, CERAMIC: 4700 uuf, ±10% -20%, 500 v dc</td>
<td>913 3012 00</td>
</tr>
<tr>
<td>C23</td>
<td>CAPACITOR, FIXED, FILM: 20 uuf, ±10%, 500 v dc</td>
<td>912 2766 00</td>
</tr>
<tr>
<td>C24</td>
<td>CAPACITOR, VARIABLE, CERAMIC: 8 to 75 uuf, 350 v dc</td>
<td>917 1075 00</td>
</tr>
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<td>C25</td>
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<td>C31</td>
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<td>CAPACITOR, FIXED, CERAMIC: same as C16</td>
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<tr>
<td>C33</td>
<td>CAPACITOR, FIXED, ELECTROLYTIC: triple section, 40 uf, ±10% -100%, 150 v dc, each section</td>
<td>183 0711 00</td>
</tr>
<tr>
<td>C34</td>
<td>CAPACITOR, FIXED, ELECTROLYTIC: same as C33</td>
<td>183 0711 00</td>
</tr>
<tr>
<td>C35</td>
<td>CAPACITOR, FIXED, ELECTROLYTIC: same as C33</td>
<td>183 0711 00</td>
</tr>
<tr>
<td>C36</td>
<td>CAPACITOR, FIXED, CERAMIC: same as C2</td>
<td>913 3009 00</td>
</tr>
<tr>
<td>C37</td>
<td>CAPACITOR, FIXED, CERAMIC: same as C2</td>
<td>913 3009 00</td>
</tr>
<tr>
<td>C38</td>
<td>SEMICONDUCTOR DEVICE, DIODE: germanium; type 1N600</td>
<td>913 3009 00</td>
</tr>
<tr>
<td>C39</td>
<td>SEMICONDUCTOR DEVICE, DIODE: germanium; type 1N87A</td>
<td>533 0200 00</td>
</tr>
<tr>
<td>C40</td>
<td>SEMICONDUCTOR DEVICE, DIODE: same as C38</td>
<td>913 3009 00</td>
</tr>
<tr>
<td>C41</td>
<td>SEMICONDUCTOR DEVICE, DIODE: same as C39</td>
<td>533 0200 00</td>
</tr>
<tr>
<td>C42</td>
<td>SEMICONDUCTOR DEVICE, SET: 1 matched pair diode semiconductor device, type no. 1N87A</td>
<td>533 0200 00</td>
</tr>
<tr>
<td>C43</td>
<td>SEMICONDUCTOR DEVICE, DIODE: same as C38</td>
<td>913 3009 00</td>
</tr>
<tr>
<td>C44</td>
<td>TRANSFORMER, AUTO: 40.0 mH, 1 winding, 0.7 to 1.1 uH inductance, 11 turns no. 32 AWG wire, 1 tap, tapped at 1-3/4 turns, phenolic coil form</td>
<td>278 0291 00</td>
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<tr>
<td>C45</td>
<td>COIL, RADIO FREQUENCY: universal wound, 32 AWG formvar wire; 0.8 to 1.8 uh, 20 ma</td>
<td>240 0822 00</td>
</tr>
<tr>
<td>C46</td>
<td>COIL, RADIO FREQUENCY: same as C45</td>
<td>240 0822 00</td>
</tr>
<tr>
<td>C47</td>
<td>COIL, RADIO FREQUENCY: universal wound, 32 AWG formvar wire; 1.3 to 3.0 uh, 30 ma</td>
<td>240 0823 00</td>
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<td>C48</td>
<td>COIL, RADIO FREQUENCY: single layer wound; magnet wire; 10 ohm inductance</td>
<td>240 0824 00</td>
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<tr>
<td>R1</td>
<td>RESISTOR, FIXED, COMPOSITION: 4700 ohms, ±10%, 1/4 w</td>
<td>745 0773 00</td>
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<tr>
<td>R2</td>
<td>RESISTOR, FIXED, COMPOSITION: 470 ohms, ±10%, 1/4 w</td>
<td>745 0773 00</td>
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<tr>
<td>R3</td>
<td>RESISTOR, FIXED, COMPOSITION: same as R1</td>
<td>745 0773 00</td>
</tr>
<tr>
<td>R4</td>
<td>RESISTOR, VARIABLE: composition; 50,000 ohms, ±30%, 1/4 w</td>
<td>376 0701 00</td>
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<tr>
<td>R5</td>
<td>RESISTOR, FIXED, COMPOSITION: 270 ohms, ±10%, 1/4 w</td>
<td>745 0728 00</td>
</tr>
<tr>
<td>R6</td>
<td>RESISTOR, FIXED, COMPOSITION: 2700 ohms, ±10%, 1/2 w</td>
<td>745 0728 00</td>
</tr>
<tr>
<td>R7</td>
<td>RESISTOR, FIXED, COMPOSITION: 6800 ohms, ±10%, 1/4 w</td>
<td>745 0728 00</td>
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<tr>
<td>R8</td>
<td>RESISTOR, FIXED, COMPOSITION: same as R6</td>
<td>745 0728 00</td>
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<tr>
<td>R9</td>
<td>RESISTOR, FIXED, COMPOSITION: same as R5</td>
<td>745 0728 00</td>
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<tr>
<td>ITEM</td>
<td>DESCRIPTION</td>
<td>COLLINS PART NUMBER</td>
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</tr>
<tr>
<td>R10</td>
<td>RESISTOR, FIXED, COMPOSITION: 10,000 ohms, ±10%, 1/4 w</td>
<td>745 0765 00</td>
</tr>
<tr>
<td>R11</td>
<td>RESISTOR, FIXED, COMPOSITION: same as R8</td>
<td>745 0710 00</td>
</tr>
<tr>
<td>R12</td>
<td>RESISTOR, FIXED, COMPOSITION: 33,000 ohms, ±10%, 1/4 w</td>
<td>745 0603 00</td>
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<tr>
<td>R13</td>
<td>RESISTOR, FIXED, COMPOSITION: 39,000 ohms, ±10%, 1/4 w</td>
<td>745 0806 00</td>
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<tr>
<td>R14</td>
<td>RESISTOR, FIXED, COMPOSITION: 1 megohm, ±10%, 1/4 w</td>
<td>745 0857 00</td>
</tr>
<tr>
<td>R15</td>
<td>RESISTOR, FIXED, COMPOSITION: same as R4</td>
<td>745 0773 00</td>
</tr>
<tr>
<td>R16</td>
<td>RESISTOR, FIXED, COMPOSITION: 47,000 ohms, ±10%, 1/4 w</td>
<td>745 0809 00</td>
</tr>
<tr>
<td>R17</td>
<td>RESISTOR, FIXED, COMPOSITION: same as R16</td>
<td>745 0809 00</td>
</tr>
<tr>
<td>R18</td>
<td>RESISTOR, FIXED, COMPOSITION: same as R2</td>
<td>745 0737 00</td>
</tr>
<tr>
<td>R19</td>
<td>RESISTOR, FIXED, COMPOSITION: 27,000 ohms, ±10%, 1/2 w</td>
<td>745 1412 00</td>
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<tr>
<td>R20</td>
<td>RESISTOR, FIXED, COMPOSITION: same as R16</td>
<td>745 0809 00</td>
</tr>
<tr>
<td>R21</td>
<td>RESISTOR, FIXED, COMPOSITION: 0.47 megohms, ±10%, 1/4 w</td>
<td>745 0845 00</td>
</tr>
<tr>
<td>R22</td>
<td>RESISTOR, FIXED, COMPOSITION: same as R16</td>
<td>745 0809 00</td>
</tr>
<tr>
<td>R23</td>
<td>RESISTOR, FIXED, COMPOSITION: 100,000 ohms, ±10%, 1/4 w</td>
<td>745 0821 00</td>
</tr>
<tr>
<td>R24</td>
<td>RESISTOR, FIXED, COMPOSITION: 1000 ohms, ±10%, 1/4 w</td>
<td>745 0749 00</td>
</tr>
<tr>
<td>R25</td>
<td>RESISTOR, FIXED, COMPOSITION: 3300 ohms, ±10%, 1/4 w</td>
<td>745 0767 00</td>
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<tr>
<td>R26</td>
<td>RESISTOR, FIXED, COMPOSITION: same as R14</td>
<td>745 0857 00</td>
</tr>
<tr>
<td>R27</td>
<td>RESISTOR, FIXED, COMPOSITION: 0.27 megohms, ±10%, 1/4 w</td>
<td>745 0836 00</td>
</tr>
<tr>
<td>R28</td>
<td>RESISTOR, FIXED, COMPOSITION: 2200 ohms, ±10%, 1/4 w</td>
<td>745 0761 00</td>
</tr>
<tr>
<td>R29</td>
<td>RESISTOR, FIXED, COMPOSITION: same as R28</td>
<td>745 0761 00</td>
</tr>
<tr>
<td>R30</td>
<td>RESISTOR, VARIABLE: composition; 2500 ohms, ±20%, 0.2 w</td>
<td>380 6286 00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>COLLINS PART NUMBER</th>
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<tbody>
<tr>
<td>R31</td>
<td>RESISTOR, FIXED, COMPOSITION: same as R24</td>
<td>745 0749 00</td>
</tr>
<tr>
<td>R32</td>
<td>RESISTOR, FIXED, COMPOSITION: same as R2</td>
<td>745 0727 00</td>
</tr>
<tr>
<td>R33</td>
<td>RESISTOR, FIXED, COMPOSITION: same as R24</td>
<td>745 0797 00</td>
</tr>
<tr>
<td>R34</td>
<td>RESISTOR, FIXED, COMPOSITION: 22,000 ohms, ±10%, 1/4 w</td>
<td>745 0815 00</td>
</tr>
<tr>
<td>R35</td>
<td>RESISTOR, FIXED, COMPOSITION: 68,000 ohms, ±10%, 1/4 w</td>
<td>745 3331 00</td>
</tr>
<tr>
<td>R36</td>
<td>RESISTOR, FIXED, COMPOSITION: 330 ohms, ±20%, 1 w</td>
<td>745 0328 00</td>
</tr>
<tr>
<td>R37</td>
<td>RESISTOR, FIXED, COMPOSITION: 270 ohms, ±10%, 1/4 w</td>
<td>745 0713 00</td>
</tr>
<tr>
<td>R38</td>
<td>RESISTOR, FIXED, COMPOSITION: 100 ohms, ±10%, 1/4 w</td>
<td>745 0818 00</td>
</tr>
<tr>
<td>R39</td>
<td>RESISTOR, FIXED, COMPOSITION: 82,000 ohms, ±10%, 1/4 w</td>
<td>745 0809 00</td>
</tr>
<tr>
<td>R40</td>
<td>RESISTOR, FIXED, COMPOSITION: same as R16</td>
<td>745 0809 00</td>
</tr>
<tr>
<td>R41</td>
<td>RESISTOR, FIXED, COMPOSITION: same as R16</td>
<td>745 0809 00</td>
</tr>
<tr>
<td>S1</td>
<td>SWITCH PUSH: spst, 3 amps at 125 v (incl H4)</td>
<td>376 7626 00</td>
</tr>
<tr>
<td>T1</td>
<td>TRANSFORMER, DISCRIMINATOR: 2.5 mc center frequency, shielded, 0.525 in. dia by 11/16 in. lg, ferrite core, 5 wire lead terminals</td>
<td>270 1711 00</td>
</tr>
<tr>
<td>T2</td>
<td>TRANSFORMER, RADIO FREQUENCY: 2 windings ferrite case, ferrite coil form, turn ratio 1.1, 4 wire terminals</td>
<td>266 0431 00</td>
</tr>
<tr>
<td>T3</td>
<td>TRANSFORMER, POWER, STEP-UP: primary winding 117 v, 60 cps, single phase, secondary no. 1, 125 v, secondary no. 2, 6.3 v, 2.0 amps</td>
<td>255 0328 00</td>
</tr>
<tr>
<td>V1</td>
<td>ELECTRON TUBE: triode-pentode; type 6U8A</td>
<td>255 0328 00</td>
</tr>
<tr>
<td>V2</td>
<td>ELECTRON TUBE: same as V1</td>
<td>255 0328 00</td>
</tr>
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</table>

7
Figure 3. 136C-1 Noise Blanker, Top View

Figure 4. 136C-1 Noise Blanker, Bottom View Showing Parts Location
Figure 5. 136C-1 Noise Blanker, Installation Diagram
CONNECT NOISE BLANKER ANTENNA HERE

ANTENNA CONNECTION STRIP OF 75A-4 (E1)
SEE DETAIL B FOR SOLDERING INFORMATION

DISCONNECT THESE 2 WIRES FROM TERMINAL 1 & SOLDER TOGETHER AS SHOWN IN ADJACENT VIEW

IN EARLY MODELS THIS RESISTOR IS R66
IN EARLY MODELS THIS RESISTOR WAS NOT USED

ANTENNA CONNECTIONS AFTER INSTALLATION OF 156C-1

TO FRONT OF BANDSWITCH
TO REAR OF BANDSWITCH

CONNECT NOISE BLANKER ANTENNA HERE

50 OHM COAX FROM 156C-1 (ANTENNA)

CONNECT REC ANTENNA HERE

DISCONNECT THIS WIRE AND THESE 2 SHIELDS AND SOLDER TO GRD LUG UNDER NOISE BLANKER CONTROL AS SHOWN IN ADJACENT VIEW

DISCONNECT BOTH ENDS OF BUS JUMPER, R115, & R117 AND DISCARD
DISCONNECT ONE END OF BUS JUMPER FROM S4 & SOLDER TO GRD LUG UNDER NOISE BLANKER CONTROL AS SHOWN IN ADJACENT VIEW

DISCONNECT THESE 2 LEADS FROM S4 & R67, INSULATE ENDS OF LEADS, AND TIE LOOSE ENDS INTO BODY OF CABLE AS SHOWN IN ADJACENT VIEW

DISCONNECT THIS WIRE AND THIS SHIELD FROM S4 AND CONNECT THEM TO THE GRID LUG UNDER THE NOISE BLANKER CONTROL AS SHOWN IN ADJACENT VIEW.

BEFORE MODIFICATION

DETAIL D

AFTER MODIFICATION
CONNECT NOISE BLANKER

ANTENNA CONNECTOR
SEE DETAIL B FOR SC

TWO BLACK LEADS FROM POWER TRANSFORMER IN 136C-1

50 OHM COAX FROM 136C-1 (ANTENNA)

SEE DETAIL A FOR SOLDERING INFORMATION & PARTS INSTALLATION

NYLON TIE

TWO WHT-BLUE WIRES

WHT-GRN WIRE

BUS JUMPER

TO NOISE BLANKER ON-OFF SWITCH & R F SAIM

TERMINAL STRIP
PART NO. 306 2220 00
QTY 1

CAPACITOR - 1000 UUF
PART NO. 913 3009 00
QTY 1

50 OHM COAX FROM 136C-1 (VIF INPUT)

DISCONNECT THIS WIRE AND DISCARD

50 OHM COAX FROM 136C-1 (VIF OUTPUT)

RESISTOR - 47K
PART NO. 745 0809 00
QTY 1

BOTTOM VIEW OF 75A-4
Figure 6. 136C-1 Noise Blanker, Schematic Diagram
ELECTRICAL WIRE CODE

EXAMPLES

UNSHIELDED WIRE, MIL TYPE B, #22 AWG, WHITE WITH RED AND GREEN TRACERS:

<table>
<thead>
<tr>
<th>Type of Wire</th>
<th>Size of Wire</th>
<th>Color of Body</th>
<th>Color of Tracers</th>
<th>Length of Wire in Inches (Includes Stripping &amp; Tinning)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>A</td>
<td>9</td>
<td>25</td>
<td>4-1/4</td>
</tr>
</tbody>
</table>

SHIELDED WIRE (SINGLE), MIL TYPE C, #15 AWG, WHITE WITH RED AND GREEN TRACERS:

<table>
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<tr>
<th>Type of Wire</th>
<th>Size of Wire</th>
<th>Shielded</th>
<th>Color of Body</th>
<th>Color of Tracers</th>
<th>Length of Wire in Inches (Includes Stripping &amp; Tinning)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>D</td>
<td>S</td>
<td>9</td>
<td>25</td>
<td>4-1/4</td>
</tr>
</tbody>
</table>

SHIELDED WIRE (MULTIPLE), MIL TYPE B, #22 AWG, WHITE, AND WHITE WITH RED TRACER:

<table>
<thead>
<tr>
<th>Type of Wire</th>
<th>Size of Wire</th>
<th>Shielded</th>
<th>First Conductor</th>
<th>Second Conductor</th>
<th>Length of Wire in Inches (Includes Stripping &amp; Tinning)</th>
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</thead>
<tbody>
<tr>
<td>D</td>
<td>A</td>
<td>S</td>
<td>(9)</td>
<td>(92)</td>
<td>4-1/4</td>
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## TYPE OF WIRE CODE

<table>
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<tr>
<th>LETTER</th>
<th>TYPE OF WIRE</th>
<th>FAMILY USUALLY FOUND IN</th>
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<tbody>
<tr>
<td>A</td>
<td>Cotton Braid Over</td>
<td>440 Plain</td>
</tr>
<tr>
<td></td>
<td>Plastic (Formerly AN-J-C-48)</td>
<td>443 Shielded</td>
</tr>
<tr>
<td>B</td>
<td>Busbar, Round</td>
<td>421 Tinned</td>
</tr>
<tr>
<td>C</td>
<td>MIL-W-16878 Type B (#20 and Larger) (600 Volts)</td>
<td>439</td>
</tr>
<tr>
<td></td>
<td>Miniature Wire, MIL-W-16878 Type B (#22 &amp; Smaller)</td>
<td>439-7000 Series</td>
</tr>
<tr>
<td>E</td>
<td>Extra Flexible</td>
<td>423 Varnished Cambric</td>
</tr>
<tr>
<td>F</td>
<td>Kel-F (Monochlorotrifluoroethylene)</td>
<td>422</td>
</tr>
<tr>
<td>H</td>
<td>Neon Sign Cable (15,000 Volts)</td>
<td>423 0004 00</td>
</tr>
<tr>
<td>L</td>
<td>Silicone</td>
<td>425 0942 00</td>
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<tr>
<td>M</td>
<td>Single Conductor Stranded (Not Rubber Covered)</td>
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<tr>
<td>N</td>
<td>Single Conductor Stranded (Rubber Covered)</td>
<td>423</td>
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<tr>
<td>P</td>
<td>MIL-W-16878 Type C (1000 Volts)</td>
<td>439 1000 Series</td>
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<tr>
<td>Q</td>
<td>Teflon, MIL-W-16878 Type E (600 Volts)</td>
<td>439 4000 Series</td>
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<tr>
<td>R</td>
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<td>439 3000 Series</td>
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<tr>
<td>T</td>
<td>Teflon, MIL-W-16878 Type EE (1000 Volts)</td>
<td>439 0000 Series</td>
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<tr>
<td>X</td>
<td>Acetate Yarn, Telephone Type</td>
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## SIZE OF WIRE CODE

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<tr>
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## COLOR CODE

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<td>Violet</td>
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<td>Tan</td>
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<tr>
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<td>Pink</td>
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<tr>
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<tr>
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<tr>
<td>f</td>
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