

FIGURE 1-0

NORELCO LDH-1/00S SYSTEMS COMPATIBLE COMPACT COLOR CAMERA

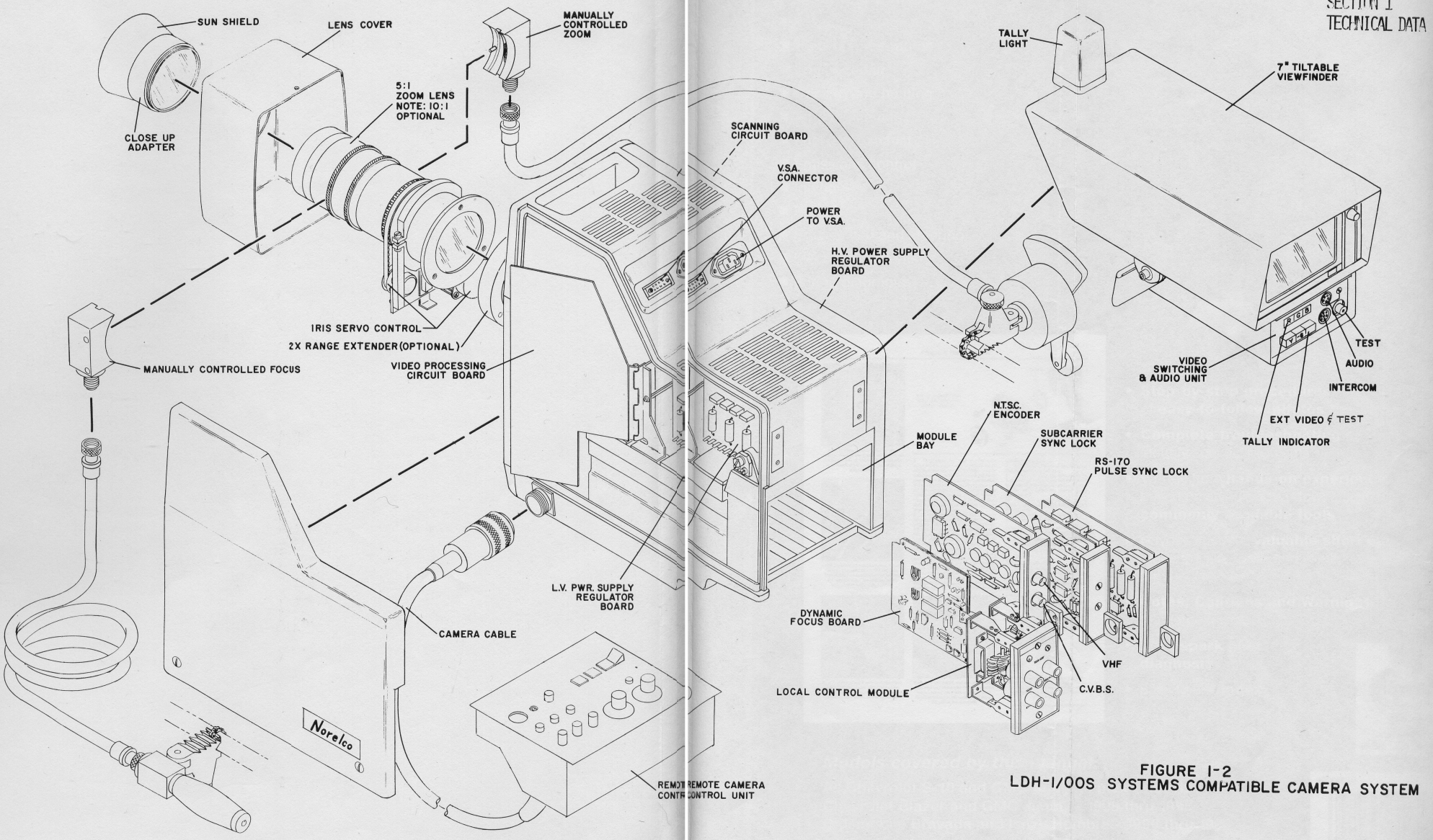


FIGURE 1-2
LDH-1/00S SYSTEMS COMPATIBLE CAMERA SYSTEM

1-4. EQUIPMENT COMPLEMENT

The complete equipment complement for an LDH-1/00S Systems Compatible Compact Color Camera is outlined in Table 1-1.

TABLE 1-1
EQUIPMENT COMPLEMENT

DESCRIPTION	PART NUMBER
LDH-1/00S System Compatible Compact Color Camera	9801 0261
Camera Head Assembly	8902 0561
Local Control Module	8902 1061
Extender Card Assembly	8902 0671
AC Power Cord	0900 0570
OPTIONS AND ACCESSORIES	
RGB Module Type LDH 4050/00	8902 1441
Encoder NTSC Compatible	8902 1421
Viewfinder Type LDH 2103/05	8902 1471
Video Switching Audio Unit Type LDH 8000/00	1100 1900
Sync Pulse & Subcarrier Module Set Type LDH 4305/50	1100 1910
Pulse Module Type LDH 4305/50A	1100 1810
Subcarrier Module Type LDH 4305/50A	1100 1820
Encoder Module FCC/NTSC	8902 0521
Video Switching Audio Unit Type 8000/00S	8902 0581
RGB Module Type 4050/00S	8902 0791
Pulse Sync Lock Module	8902 0701
Subcarrier Sync Lock Module	8902 0731
External Subcarrier Module	8902 0861
External Pulse Module	8902 0841
Remote Control Units	8902 1931 8902 0603
Local Control Extender Module	
25 Feet	8902 0831
50 Feet	8902 0832
75 Feet	8902 0833
100 Feet	8902 0834
125 Feet	8902 0835
150 Feet	8902 0836

TABLE 1-1 (Continued)

DESCRIPTION	PART NUMBER
Rack Panel Assembly for	
VSA and Control Module	8902 0511
Two Remote Control Units	8902 0611
Four Local Control Modules	8902 0621
Intercom Tie Unit	8902 2161
C Mount Lens Adapter	4300 1251
Lens Zoom 25-125mm, f/1.7 (Schneider)	4300 2700
Lens Motorized Zoom & Focus 25-125mm, f/1.7 (Schneider)	4300 2730
Flex Cables & Hand Controls LDH 6103/00	4300 2740
Lens Motorized Iris, 16-160mm, f/2.4 (Rth Varitol XXIII A)	4300 2760
Lens Fixed 75mm, f/1.8 (Telecine)	8902 0551
Lens Motorized Iris, 15-150mm, f/2.0 (Canon)	8902 0591
Plumbicon Tubes	
XQ1070R (Broadcast)	8700 0960
XQ1070G (Broadcast)	8700 0950
XQ1070B (Broadcast)	8700 0940
XQ1071R (Industrial)	8700 0980
XQ1071G (Industrial)	8700 0990
XQ1071B (Industrial)	8700 1000
Vidicon 8541A	8700 0340
Camera Cable Assemblies	
8 Feet	8902 0641
50 Feet	8902 0631
100 Feet	8902 0632
115 Feet	8902 0642
200 Feet	8902 0633
400 Feet	8902 0634
500 Feet	8902 0635
600 Feet	8902 0637
800 Feet	8902 0638
1000 Feet	8902 0636
VSA Extension Cables	
25 Feet	8902 0951
50 Feet	8902 0952

TABLE 1-1 (Continued)

DESCRIPTION	PART NUMBER
Scan Reversal Assembly	8902 1281
Headset Assembly	8902 1791
Pan Head 4-5200-7	1100 2010
Mobile Pedestal Type 5450	1100 2120
Tripod Type 5302	1100 0150
Dolly Type 5602	1100 0370
Camera Numerals (1-6)	5300 0731

1-5. TECHNICAL DATA

TABLE 1-2
LDH-1/OOS PERFORMANCE SPECIFICATIONS

Scanning Standards	525 lines, 60 field/seconds
Input Voltage	110, 117, 220 and 234 V ±10% 50-60Hz, adjustable by voltage selectors
Power Consumption	75 watts: Basic camera 105 watts: With Viewfinder and Video Switching and Audio Unit
Camera Tubes	Three Plumbicons or Vidicons, 1-inch, separate mesh, with 2-watt maximum filament power requirement per tube
Encoder Module Output Signal	
Composite encoder video	1V p-p 75Ω source impedance
VHF modulated video with FM sound	1 millivolt rms across 75Ω tuneable to channels 3 or 4
RGB Module Output Signal	
Non-composite RGB video	0.714V across 75Ω
Composite green video	1V p-p across 75Ω
Systems Compatible with Encoder Module	
Cue signal	Available at BU1 connector in camera
Program Audio	Available on Remote Control Unit
Composite encoded video	1V p-p 75Ω source impedance
VHF modulated video with FM sound	1 millivolt rms across 75Ω tuneable to channels 2, 3 or 4
Isolated composite encoded video signal on Remote Control Unit (RCU)	1V p-p 75Ω 1 output on RCU 8902 1931 2 outputs on RCU 8902 0603

1-5. TECHNICAL DATA (Continued)

Input Signal

Self-Contained Version — None Required

Input Signal	External Pulse Version	System Compatible Version
Synchronous Test or Video Signal	0.714V p-p across 75Ω	
Intercom Signal	0.775Vrms across 300Ω	
Program Sound	0.2mV/μbar from program microphone	
Tally Signal	24Vdc 5.5 watts	
Subcarrier	2V p-p across 75Ω	Same except loop-through input
Composite Sync	0 to -4V across 75Ω	Same except loop-through input
Hor. Drive	0 to -4V across 75Ω	Not applicable
Vert. Drive	0 to -4V across 75Ω	Not applicable
Composite	0 to -4V across 75Ω	Not applicable
Blanking	0 to -4V across 75Ω	Not applicable
Burst Key	0 to -4V across 75Ω	Not applicable
Ext Video	Not applicable	0.714V p-p across 75Ω
Intercom	Not applicable	Dynamic microphone input
Cue	Not applicable	1.5Vrms balanced line

1-5. TECHNICAL DATA (Continued)

Systems Compatible with RGB Module

Non-Composite RGB video	0.714V p-p 75Ω source impedance
Composite green video	1V p-p 75Ω source impedance
Isolated video signals on Remote Control Unit:	
Red	0.714V p-p 75Ω
Non-composite blue	0.714V p-p 75Ω
Green	1V p-p
Video Switching and Audio Unit	R,G,B,Y and -G video at VSA output

Horizontal Oscillator

Type	Crystal oscillator, 251.784kHz
Phase Range	System compatible version is adjustable from -18µsec to +8µsec relative to incoming sync
	Self-contained version is non-adjustable
Locking Range	System compatible version is phase locked to external sync
	Self-contained version is phase locked to internal subcarrier oscillator

Subcarrier Oscillator

Type	Crystal oscillator, 3.579545MHz
Phase Range	0° to 360°, adjustable
Locking Range	Pull-in range: ±30Hz Lock-in range: ±30Hz Automatic return to internal locking with loss of external subcarrier or sync

1-5. TECHNICAL DATA (Continued)

Resolution	Modulation depth, without aperture correction, at 5MHz and 200-nano-ampere signal current: Plumbicon: 30% approximately Vidicon: 50% approximately
Color Registration	
Deviations of Red and Blue in any direction with respect to Green.	1. In an ellipse with axes 0.9 of the picture height and width, deviations will be no more than the distance equal to a horizontal scanning time of 60 nanoseconds. 2. Within a circle of a diameter equal to the picture width, deviations will be no more than 80 nanoseconds. 3. Outside this circle, deviations will be no more than 150 nanoseconds.
Registration Stability	
Deviations of Red or Blue in any direction with respect to Green.	Variations of the ambient temperature of the camera of no more than ±10°C from the temperature during registration setting (within the range of -0 to 45°C) will not cause mutual picture shifts larger than 100 nanoseconds.
Geometric Distortion	Maximum 1.0% of the picture height within the ellipse; maximum 2% outside the ellipse (lens distortion expected).
Signal-to-Noise Ratio	43 dB in each channel, at a signal current of 300 nanoamperes, without aperture or gamma corrections; measured in a bandwidth of 5 MHz.

1-5. TECHNICAL DATA (Continued)

Gain Control	
Local Control Module	
Green Channel	Gain may be adjusted in 5 steps of 6dB each from -6dB to +18dB. 0dB corresponds to 150 nanoamperes linear signal current.
White Balance Control	Continuous gain control of 12dB in red and blue channels; additional step of -12dB via switch coupled to controls.
Remote Control Unit	Continuous gain control of 12dB in red, green and blue channels; additional step of +12dB by front panel switches.
Frequency Response	Without aperture correction: Flat to 5MHz ±1dB, -4dB at 7MHz. Tilt at 50Hz: 2% maximum. Overshoot at 15.6KHz and 250KHz: 1% maximum.
Contour Correction	Correction signal adjusted at 60% of nominal output signal with maximum correction at 2.9MHz. This signal is derived from the green video and added either to the output signal of the RGB mdoule or the Y channel of the Encoder module.
Gamma Correction	Individual gamma correction, adjustable from 1.4 to 1.6 to linearize Vidicon characteristics. Switched to 1.0 for Plumbicon operation. Second individual gamma correction adjustable from 0.4 to 0.6 after linear matrix. The tracking error after gamma correction with respect to green signal, will not exceed 1% of the maximum signal level.
Black Level Adjustment	Master control ±25% of maximum signal level, after gamma correction.

1-5. TECHNICAL DATA (Continued)

Dark Current Compensation	Automatic compensation for vidicon dark current variations up to a maximum dark current of 40nA.
White Clipper	Peak clipping in each channel at 105% signal level; adjustable.
Warm-up Period	Operates per performance specification in 30 minutes; provides acceptable color registration in 2 minutes.
Automatic Iris Control	Adjustable operation at peak, average, or any value in between the most positive video signal.
Encoder	EIA/NTSC: Equiband NTSC output with quadrature color modulation of the subcarrier by R-Y and B-Y signals of equal bandwidth. NTSC/FCC: Quadrature modulation of subcarrier by I & Q signals. Adjustable set-up.
Scene Illumination	125 foot-candles for signal-to-noise ratio of 42dB in the CVBS output signal, with 3200°K color temperature, 60% reflection coefficient of scene, average Plumbicon tubes, lens iris set to f/2.8, gamma correction to 0.6 and measured at 45% of nominal level, bandwidth of 4.2MHz. 15 foot-candles for acceptable pictures with lens iris f/2.8.
Controls	
Local Control Module	Five-step selector for green gain control; continuous gain controls for red and blue; continuous master black level control; iris control combined with selector switch for automatic or manual operation.
VSA Unit (optional)	Six push-buttons for the selection of the video signals R,G,B,Y, -G and TEST for display on the viewfinder; screwdriver control for modulation depth of program sound signal, combined with an on/off switch.

1-5. TECHNICAL DATA (Continued)

Remote Control Unit	Continuous gain controls for red, green and blue; 12dB boost by switch, continuous master black level control, Iris control, aut/man iris switch, intercom volume and cable compensation switch.
Permissible Ambient Temperature	From 32° to 113° F (0° to 45° C); Tropicalized design.
Weight (less lens)	Camera without viewfinder 55 lbs. Camera with viewfinder 70 lbs.
Mechanical Dimensions	Height: 18 1/8 " 45.9 cm Length: 15 3/4 " 39.9 cm Width: 8 11/16" 21.9 cm

1-6. DRAWING SYMBOLS

All units and connectors are identified by one or two letters, for example, the High Voltage Power Supply Unit reference designation is K, and the RGB tube socket reference designations are MR, MG and MB, respectively. On Unit K, each connection terminal is indicated by a number, for example, 8. A destination reference (P15) is shown adjacent to terminal 8. This means that terminal 8 of Unit K is connected to terminal 15 of Unit P. The destination reference at terminal 15 of Unit P is K8. All interconnections between the units are shown in the Camera Head Interconnection Diagram.

Block diagrams and schematics are arranged so that a certain block on a block diagram corresponds to circuitry in the same area on the schematic. Input signals are shown on the left and output signals on the right side of the diagrams where possible.

Examples of component designations used in the schematic diagrams with their equivalent values are shown below:

RESISTORS

2K2 means 2.2K or 2200Ω
47K means 47000Ω
1M means 1000000Ω

CAPACITORS

1K2 means 1200pf
6.4µ means 6.4µf