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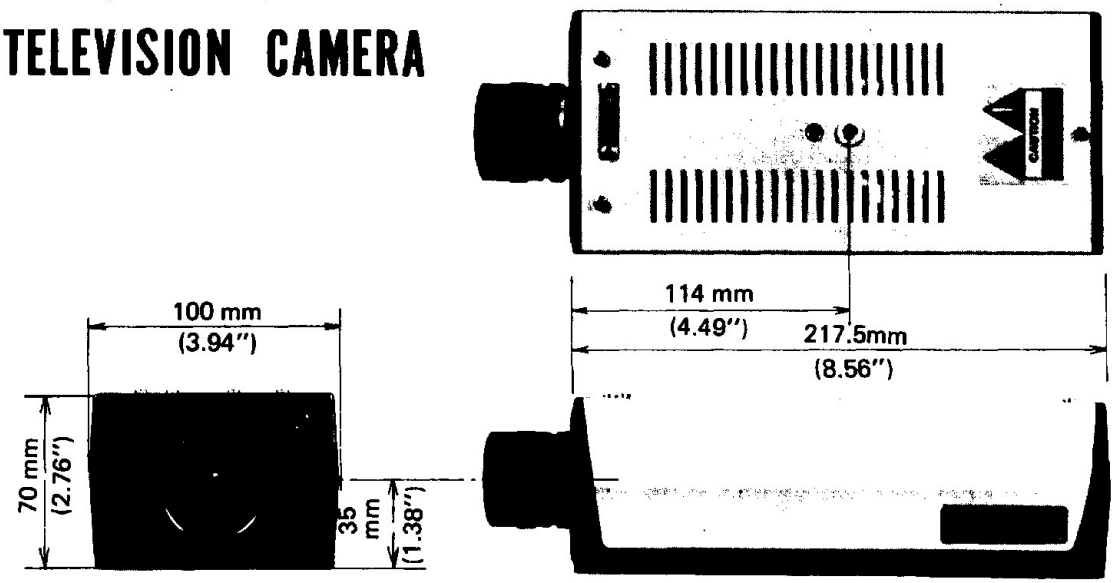
Ikegami

INSTRUCTION MANUAL

SURVEILLANCE CAMERA

Model ITC-410

CLOSED CIRCUIT TELEVISION CAMERA



EXTERNAL APPEARANCE
UNIT:MILLIMETER(Inch)



OUTDOOR USE WARNING

WARNING-TO PREVENT FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

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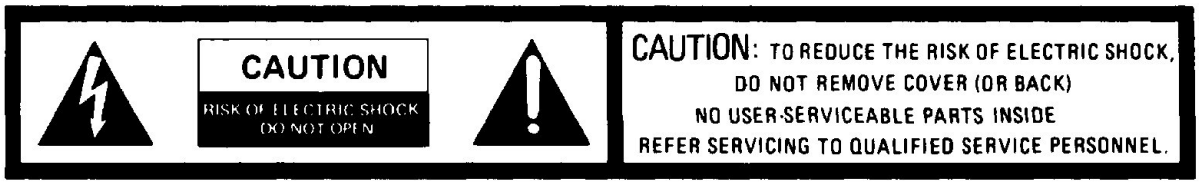
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SPECIFICATIONS .....

IMPORTANT SAFEGUARDS

* Read Instructions - All the safety and operating instructions should be read before the appliance is operated.
* Retain Instructions - The safety and operating instructions should be retained for future reference.
* Heed Warnings - All warnings on the appliance and in the operating instructions should be adhered to.
* Follow Instructions - All operating and use instructions should be followed.
* Cleaning - Unplug this video product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
* Attachments - Do not use attachments not recommended by the video product manufactures as they may cause hazards.
* Water and Moisture - Do not use this video product near water - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, and the like.
* Accessories - Do not place this video product on an unstable cart, stand, tripod, bracket, or table. The video product may fall, causing serious injury to a child or adult, and serious damage to the appliance. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the video product. Any mounting of the appliance should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.
* Ventilation - Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the video product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the video product on a bed, sofa, rug, or other similar surface. This video product should never be placed near or over a radiator or heat register. This video product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
* Power Sources - This video product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company. For video products intended to operate from battery power, or other sources, refer to the operating instructions.
* Grounding or Polarization - This video product is equipped with a polarized alternating-current line-plug (a plug having one blade wider than the other) or a 3-wire grounding-type plug (a plug having a third grounding pin). This is a safety feature.
  The plug having one blade wider than the other will fit into the power outlet only one way. If you are unable to insert the plug fully into the outlet, try reversing the plug. The plug having a third grounding pin will only fit into a grounding-type power outlet. If the plug should fail to fit, contact you electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug or the grounding-type plug.
* Power-Cord Protection - Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
* Lightning - For added protection for this video product receiver during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the cable system.
  This will prevent damage to the video product due to lightning and power-line surges.
* Power Lines - An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.
* Overloading - Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.
* Object and Liquid Entry - Never push objects of any kind into this video product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the video product.
* Servicing - Do not attempt to service this video product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
* Damage Requiring Service - Unplug this video product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

  a. When the power-supply cord or plug is damaged.
  b. If liquid has been spilled, or objects have fallen into the video product.
  c. If the video product has been exposed to rain or water.
  d. If the video product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the video product to its normal operation.
  e. If the video product has been dropped or the cabinet has been damaged.
  f. When the video product exhibits a distinct change in performance - this indicates a need for service.

* Replacement Parts - When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.
* Safety Check - Upon completion of any service or repairs to this video product, ask the service technician to perform safety checks to determine that the video product is in proper operating condition.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

INTRODUCTION

Model ITC-410 is designed for general monitoring purposes, employing a Mag-Mag type 2/3" separate mesh vidicon, featuring high sensitivity and high resolution.
An aluminum diecast enclosure offers excellent heat dissipation and shielding.
Installation and setup are extremely simple. Attention-free, reliable service is assured for long periods of time, and the following valuable features are also incorporated.

ALC 100,000:1

The camera uses a high-sensitivity video amplifier, high-performance automatic target control, and automatic gain control circuit to produce an ALC range of 100,000 : 1. With an F1.4 lens, the camera can provide images satisfactory for practical purposes within the object luminance range of about 1 lux to 100,000 lux without adjustment.

ABC Circuit

The built-in automatic beam control circuit automatically compensates for vidicon beam shortage due to change in vidicon cathode emission with time. This means there is no beam shortage during the service life of the vidicon.

Line-Lock 2:1 Interlace, RS-170 or CCIR

A special sync generator LSI is adopted to this model to produce formal signal with an equalizing pulse and serration pulse. The synchronization is based on a line-lock by PLL and 2:1 interlace to assure perfect synchronization in video tape recording and sequential switching.

* The DC model employs a standard 2:1 interlace system controlled by a crystal oscillator.

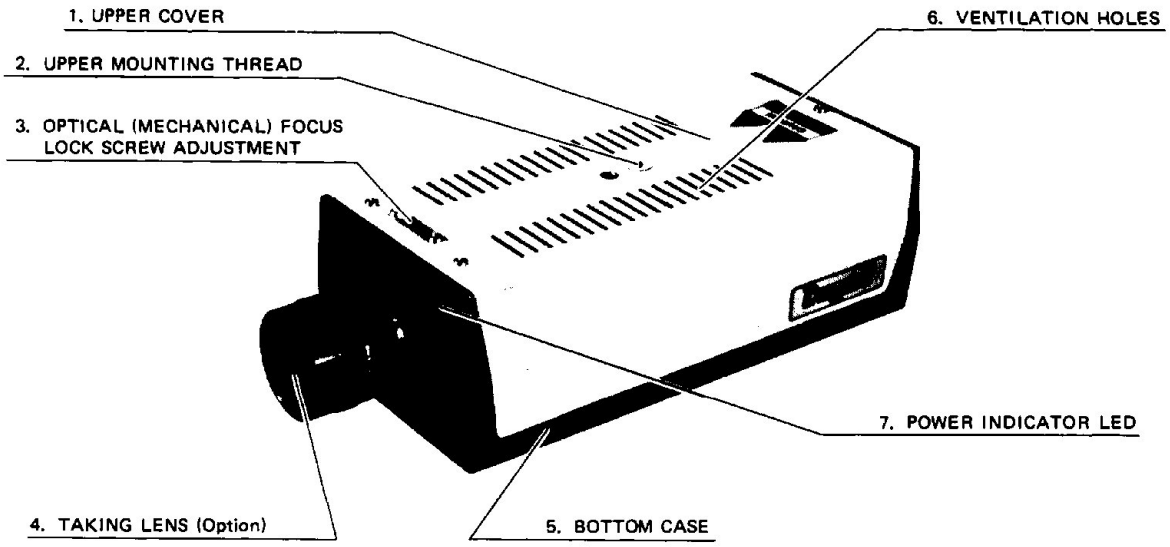
GENLOCK (Type T option)

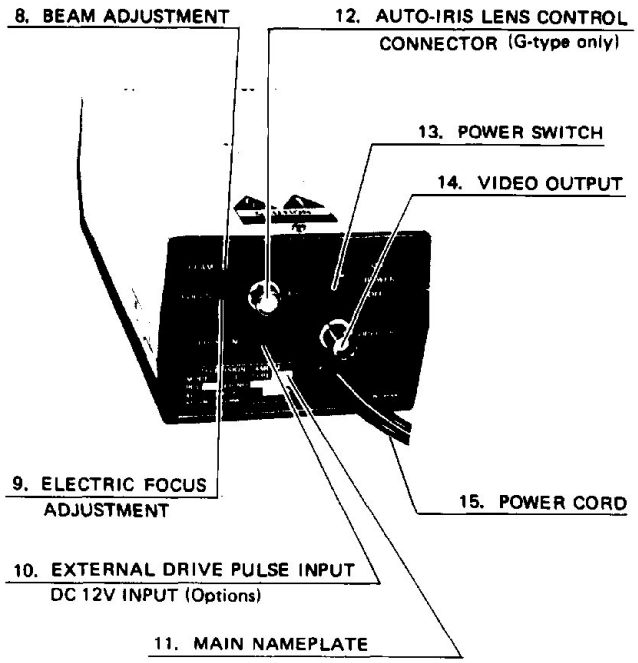
Genlock function is optionally available.
This function synchronizes any input signal (Composite Sunc., VS or VBS, and separate HD and VD); making the camera adaptable to almost any CCTV system.

LOW LIGHT LEVEL Camera (Type G Option)

Low light level cameras with optional parts, such as a Newvicon (a high-sensitivity pickup tube) and auto iris control connector, are available.
Cameras with the Newvicon S4075 and an auto iris lens of F1.3 to F360, plus the original AGC circuit, have an ALC range of about 3,100,000 to 1; providing images satisfactory for practical purposes within a object luminance range of about 0.09 lux to 280,000 lux without adjustment.

NAMES OF EACH SECTION





HANDLING PRECAUTION

Please note that the ITC-410 camera is a finely adjusted precision piece of equipment To be assured to trouble-free operation, full performance capability and a long service life, we strongly recommended that you check these instructions completely before attempting to assemble, install of operate the camera.
Although this camera is a solid-state, modular unit using mainly low-voltage circuitry at non-hazardous energy levels, power supply voltages present on certain parts of the interior.
Such parts are not accessible in normal use, but while carrying out maintenance or repair, EXTREME CARE should be taken. Mains voltages can be LETHAL!

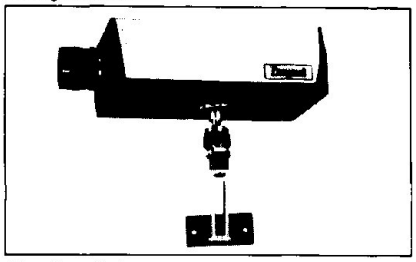
It is strongly recommended not to move a camera cover and internal controls unless really necessary, and in such cases, always follow the procedure given in these instructions, and use appropriate tools. And note that the inside adjustment or repair should only be made by a fully qualified technician.

* Always, handle the camera carefully, and avoid physical shock etc., as much as possible.
* To avoid particle setting on the vidicon tube (inner) target surface, which reduces picture quality, the camera should never be handled or stored with the lens opening facing downward.
* Do not allow strong light (sunlight, etc.) to shine directly into the lens. Damage to the camera tube may result, even if the camera is not switched on. When installing, give careful consideration to the changing sunlight direction through the day and through the seasons.
* When installing, keep the camera away from direct heat sources, high-powered lights, especially strong magnetic fields. Excessive moisture–, gas–, or salt-laden atmospheres should be avoided as much as possible, since circuitry components and connector contacts may be adversely affected.
* When installing, ensure that ventilation is adequate. And do not block the ventilation holes in the camera cover
* Dust accumulation should be avoided, since many parts of the unit will be adversely affected in time, and the service-free life while be shortened.
* Regularly check the connection cables, which are prone to damage, especially in outdoor use. The cable should always be handled with care, kept free from sharp bends and kinks, and relieved from strain near the connectors. And checking of the connectors for full insertion and tightness is also recommended, especially where the same setup is used for a long time.

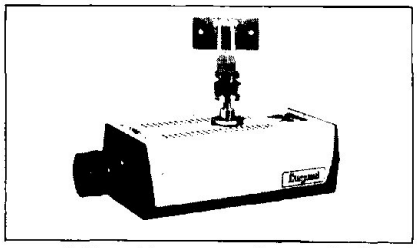
CAMERA SETUP

* Make sure that the camera is installed securely, in a stable condition.

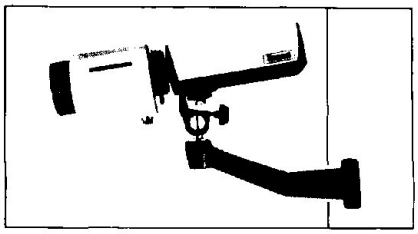
  Three threaded holes are provided with the camera and normally the middle hole on the bottom is used for tripod or mounting bracket.



* For ceiling installation, use the upper threaded hole for ceiling bracket.

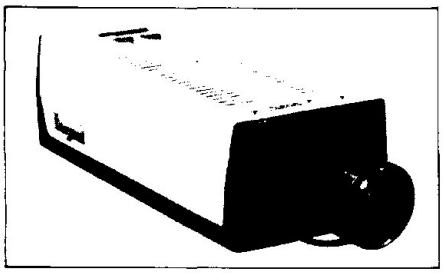


* In the case of big and heavy zoom lens application, the front hole on the bottom provides good balance.



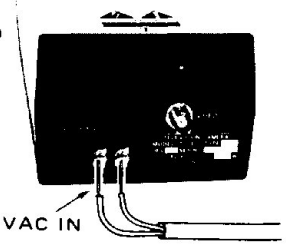
* Make the coaxial-cable connection between the camera output and the monitor input.

  If the lens is an auto-iris control type, plug in the lens control cable to the camera lens connector on a rear panel (G type).



* After completing cable connections, connect the AC mains cable to AC outlet.

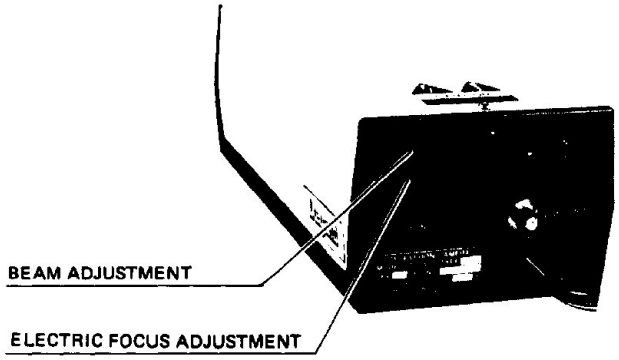
  In the case of 24VAC version camera, connect the power cord to the 24VAC terminal strip on the camera rear panel, as shown.



* After switching on the monitor and setting up the raster brightness, switch on the camera power.

  The picture should appear after 20 – 30 seconds warmup. And adjust the lens focusing to produce the required image sharpness.

BEAM & FOCUS ADJUSTMENT



BEAM ADJUSTMENT

(1) This can be done with the beam adjustment at the rear of the camera. It is preset before shipment for double beam current on the resolution chart at 800 Lux for televising normal scenes.

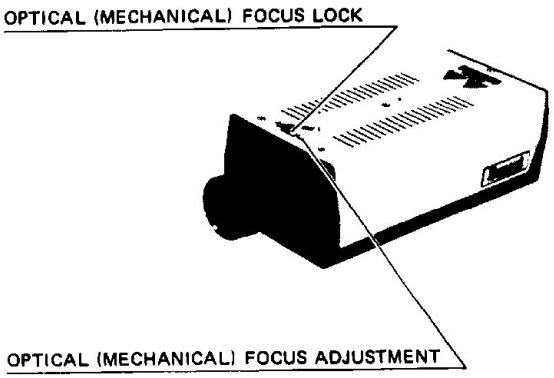
(2) If the white parts of the picture do not appear clearly, turn this control clockwise and stop at a position where the brightest part of the scene appears completely (except small bright parts).

Turning the control too far clockwise will cause impaired focus and distortion at the center of the picture.

FOCUS ADJUSTMENT

(1) Both optical and electrical focus adjustments are provided. Clear picture can only be obtained when both are adjusted correctly.

(2) Normally, the optical focus is adjusted with the focus ring on the lens. This is not normally provided on short focal length lenses.
There is also a factory preset optical focus adjustment on the camera body (on the front top).
This moves the vidicon tube back and forth to for coarse focussing. Optical focus may need to be re-adjusted when the lens is changed.



Do not rotate the focussing screw too much. Excessive rotation with over-torque more than 0.8Kg-cm may cause a screw trouble.

To do this, first set the lens focus ring to infinity and open the lens iris.
Then, adjust optical focus until objects 20 meters and farther away are in focus. The lens focus ring can now be used to focus objects at any distance.

(3) Electrical focus is adjusted with the focus adjustment on the rear of the camera.
When clear picture cannot be obtained by adjusting the lens focus ring, the beam may be out of focus.

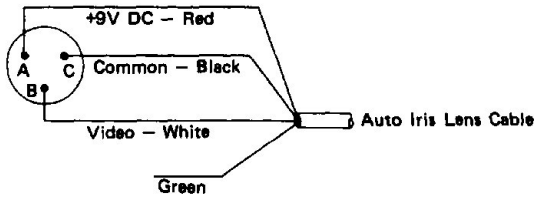
Turn the focus control to adjust.
Note that the optimum setting varies according to the setting of the beam current.

AUTO IRIS LENS SETUP

* **Connection of Auto Iris Lens**

The plug for the auto iris drive connector shall be an R05-PB3M (manufactured by Tajimi Radio) only.

A connector plug is supplied as an accessory with a camera equipped with a Newvicon. A camera with a vidicon is not supplied with a connector plug.

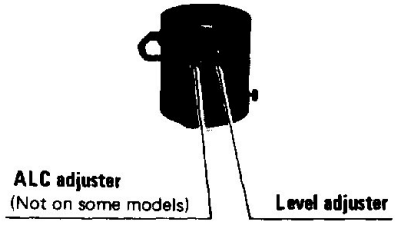


This wire is not always used. Insulate its termination with an insulation tape, etc.

* **Adjustment of Automation Iris Lens**

The automatic iris lens adjustment is pre-set to the reference value of the lens itself. Do not fail to readjust when mounting it on this camera.

When an adjustment has not been made properly, the dynamic range of the video amp may be exceeded, or S/N ratio may deteriorate.



* **Adjustment**
Lens with ALC adjuster: Remove cap from adjuster, and turn adjuster fully to position A.
(average response metering side).
Pick up a resolution pattern at 500 lux or more, and turn LEVEL adjuster until video output level on back of camera head is about 0.7 Vp-p (includes pedestal level of 0.1 Vp-p).
If you wish to turn the ALC adjuster back toward position P (peak response metering) because of light conditions of the object, turn the ALC adjuster to an appropriate point in that direction, provided the camera has an auto iris lens with ALC adjuster. If the ALC adjuster is excessively turned toward position P, the iris may not operate properly.

INTERNAL UNIT ADJUSTMENTS

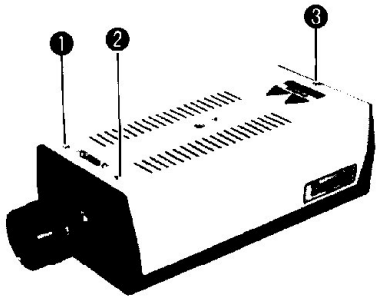
All internal adjustments and controls are factory set and locked at the optimum position.

It is strongly recommended not to touch then unless really necessary, and such cases, always follow the instructions given in this operation manual, and use the appropriate tools.

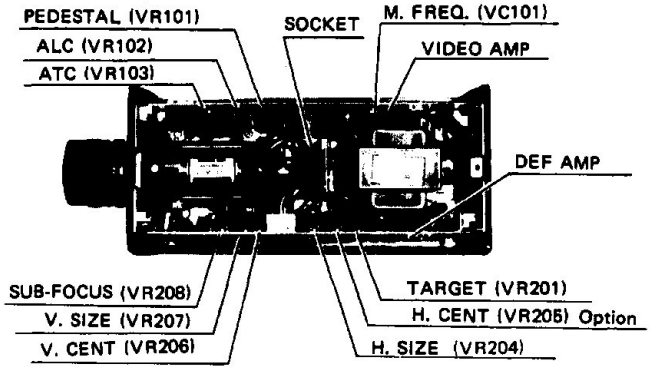
And adjustment should not be undertaken except a fully qualified service personnel.

1) Opening the case

Remove 3 screws from top, and lift off upper case to control any and all adjusters and controls inside.

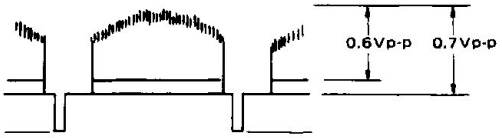


2) Internal adjuster locations

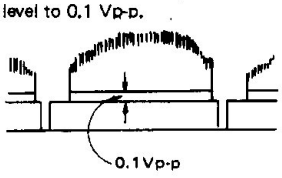


3) Adjustments of VIDEO Amp PWB

* ATC (VR103), ALC (VR102)
  These controls regulate the DC voltages that control the AGC and ATC circuits. Turn ATC control fully to the left to turn off the ATC, pick up a resolution pattern of 800 lux, set lens iris to F8, and turn ALC control until video output level is 0.65 to 0.6 Vp-p (includes pedestal level of 0.1 Vp-p).
  Then, set lens iris to F1.8, and turn ATC control until video output level is about 0.7 Vp-p (includes pedestal level of 0.1 Vp-p).
  Set lens iris to F4, and check that video output level is about 0.7 Vp-p (includes pedestal level of 0.1 Vp-p). If video output level differs much from specified value, adjust again.



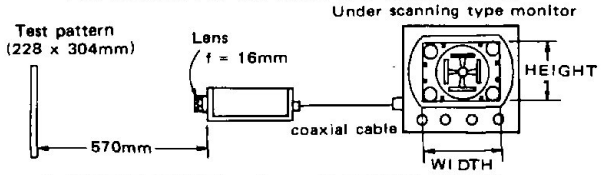
* Pedestal (VR101)
  After adjusting ATC and ALC controls as described above, pick up pattern of same conditions, set lens iris to F4, and adjust pedestal level to 0.1 Vp-p.



* M. FREQ (VC101)
  This trimmer capacitor is used to adjust the effective synchronizing range. Only cameras of line lock specifications need this adjustment.
  Turn this control until DC voltage between emitter of Q126 and GND is 2.0 ± 0.02 V. Remember, however, that DC voltage varies with sync. frequency (50 Hz/60 Hz).

4) Adjustment of DEF Amp PWB

* Sub Focus (VR208)
  This adjuster regulates the focus coil current and controls the voltage between Pin 7 of IC202 and GND (both ends of R246) to 0.95 V.
* H. SIZE (VR204), V. SIZE (VR207)
  These controls adjust the scan size. The H. Size adjusts the horizontal amplitude, and the V. SIZE the vertical amplitude. In a standard setup such as shown below, adjust these adjusters until test pattern is fully displayed on monitor screen.

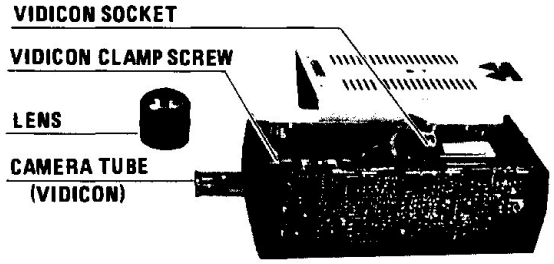


* **H. CENTER (VR205) option, V. CENTER (VR206)**
  These controls adjust the picture position. Use these controls if, after replacing the pickup tube, the vidicon corners are shown during are shown alignment adjustment. Adjust them until the vidicon corners are no longer visible. The V. CENTER moves the picture up or down, and the H. CENTER moves it to either right or left. Be careful not to turn them more than necessary because excessive turning adversely affect the linearity.

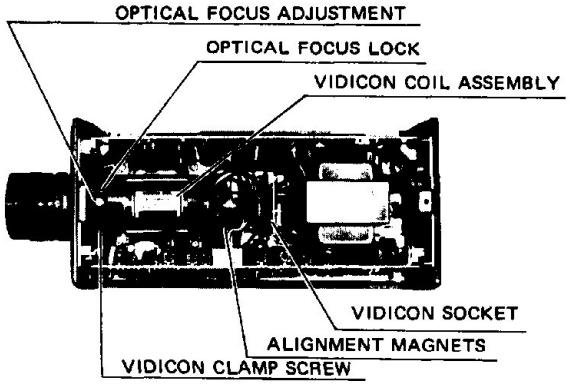
* **TARGET (VR201)**
  This control adjusts the pickup tube target voltage, which should be adjusted before adjusting the ALC and ATC.
  If het camera is of vidicon type, turn ATC control fully to the left to turn off the ATC, keep the lens cap on, and turn TARGET control until its mid-point voltage is Esj-5V of the pickup tube. If an after-image often appears, slightly turn TARGET control to the left. Be careful not to excessively turn it; otherwise the signal-to-noise ratio might lower or extremely darken the picture near the edges of the screen.
  If the camera is of newvicon type, adjust mid-point voltage of TARGET control to Esj of pickup tube.

VIDICON REPLACEMENT

1) Turn the camera power off, and remove the upper cover and lens.
2) Remove the vidicon socket carefully from the vidicon. When removing the socket, watch out for electric shocks from the capacitor connected to the electrodes.
3) Loosen the vidicon clamp screw attached to the front of the coil assembly, pull the old vidicon out and insert the new one.



4) Push the new vidicon in as far as it will go and adjust the angle so that the short index pin is on the right when facing the vidicon front.
   If problems with poor alignment or shading have been experienced, the vidicon angle may be adjusted at this point for optimum performance.
5) Being careful not to break the vidicon, tighten the vidicon clamp screw so that the vidicon will not rotate.
   Insert the vidicon socket while holding the vidicon front with some soft clean cloth such as silicon cloth.
6) Remove any dirt from the vidicon surface with a silicon cloth, and then attach the lens.



7) Align the vidicon by turning the two alignment magnets attached to the rear of the coil assembly.
   The ideal alignment point is where turning the focus adjustment does not move the center of the image but instead causes the image to rotate around the center.
   Furthermore, when focusing with this alignment position, shading and focus must have good uniformity and flicker and corner must not appear.
   If ringing appears on the left side of the picture loosen vidicon clamp screw, turn vidicon to optimum position, tighten vidicon clamp screw again, and readjust alignment.
8) If vidicon is removed and installed back optical focus may deviate out of position. Check that infinite focus is correct. If not, loosen clamp screws, and turn adjusting screw as appropriate.

When all these adjustment have been performed, paint-lock the alignment magnets and install the cover.

SCHEMATIC DIAGRAM & MAIN COMPONENT LIST

ITC-410 GENERAL

⚠	PC1	Power cord with plug	Cord, SPT 2 Plug, VM-0228AP (For USA UL type) UL approved
⚠	PC1	Power cord with plug	Cord, SJT-3 (For USA CSA type) CSA approved Plug, VM-0033A (For USA CSA type) CSA approved
⚠	PC1	Power cord with plug	Cord, ES 302 Plug, P-368 (For Europe)
⚠	PC1-a	Power cord bushing	SR-4K-4 (For USA UL type) UL approved
⚠	PC1-a	Power cord bushing	SR-6W-1 (For USA CSA type) CSA approved
⚠	PC1-a	Power cord bushing	SR-5P-4 (For Europe)
⚠	SW1	Power switch	SDJ1S UL approved CSA approved
⚠	T1	Power transformer	ST4-A64004-1B (AC120V type) Family No. TKP0108-A176 UL approved
⚠	T1	Power transformer	ST4 A64004-1C (AC220V/240V type)
⚠	T1	Power transformer	ST4 A64004-1D (AC24V type)
⚠	F1-a	Fuse holder	F7175
⚠	F1	Fuse	MF51NM 0.15A (AC220V/240V type)
⚠	F1	Fuse	MF51NM 1.5A (DC12V type) (option)
	V1	Camera tube	20PE13A or Equivalent, ⅔" separate mesh vidicon
	L1	Vidicon coil assembly	VCM-34
	CN1	Connector jack	SMF 01T 1.3
	CN2	Connector socket	W-A3202-2H
	CN3	Connector socket	W-A3203-2B
	CN4	Connector socket	W-A3203-2B
	CN5	Connector socket	W-A3202-2B
	CN6	Connector socket	W-A3207-2B
	CN7	Connector socket	TCS0254 (option)
	CN7	Connector plug	TCP0556 (option)
	CN8	Connector socket	W-A3211-2B
	CN9	Connector socket	R05-R3F (option)
	CN9	Connector plug	R05-PB3M (option)
⚠	CN10	Terminal	OM9-2 (AC24V type)
	CN11	Coaxial receptacle	BNC-BR-D

ITC-410 VIDEO AMP UNIT

IC101	Integrated circuit	LA6458S
IC102	Integrated circuit	LA6458S
IC103	Integrated circuit (C-MOS)	XD4301
IC104	Integrated circuit (C-MOS)	HD14001BP (option)
IC105	Integrated circuit (C-MOS)	HD14011BP (option)
Q101	Field effect transistor	2SK493-G
Q102	Silicon transistor	2SC1906 or 2SC535-C
Q103	Silicon transistor	2SA1031-C
Q104	Silicon transistor	2SC458LG-C
Q105	Field effect transistor	2SK212-P
Q106	Silicon transistor	2SC458LG-C
Q107	Silicon transistor	2SA1031-C
Q108	Silicon transistor	2SC458LG-C
Q109	Silicon transistor	2SC458-C
Q110	Silicon transistor	2SC458-C
Q111	Silicon transistor	2SA1015-Y
Q112	Silicon transistor	2SC458-C
Q113	Silicon transistor	2SC1906
Q114	Silicon transistor	2SC1906
Q115	Silicon transistor	2SC458-C
Q116	Silicon transistor	2SA1015-Y (option)
Q117	Silicon transistor	2SC1815-Y (option)
Q118	Silicon transistor	2SC2362K-G
Q119	Silicon transistor	2SC1815-Y
Q120	Silicon transistor	2SA1015-Y (option)
Q121	Silicon transistor	2SA1015-Y (option)
Q122	Silicon transistor	2SC458-C (option)
Q123	Silicon transistor	2SC458-C (option)
Q124	Silicon transistor	2SC458-C (option)
Q125	Silicon transistor	2SC458-C (option)
Q126	Silicon transistor	2SC458-C
Q127	Silicon transistor	2SC458-C (option)
D101	Silicon diode	1S1588
D102	Silicon diode	1S1588
D103	Silicon diode	1S1588
D104	Silicon diode	1S1588
D105	Silicon diode	1S1588
D106	Silicon diode	1S1588
D107	Silicon diode	1S1588
D108	Silicon diode	1S1588
D109	Silicon diode	1S1588
D110	Silicon diode	1S1588
D111	Silicon diode	1S1588
D112	Silicon diode	1S1588
D113	Silicon diode	1S1588
D114	Varicap diode	1SV68
D115	Silicon diode	1S1588 (option)
D116	Silicon diode	1S1588 (option)
D117	Silicon diode	1S1588 (option)
D118	Zener diode	HZ5C-1
TH101	Thermistor	TD5-C420 (option)
VR101	Variable resistor	VM6CK-PH(1S)10K ohms-B
VR102	Variable resistor	VM6CK-PH(1S)-1K ohms-B
VR103	Variable resistor	VM6CK-PH(1S)10K ohms-B
VC101	Ceramic trimmer capacitor	ECV-1ZW-60X64T
X101	Crystal unit quartz	KF-38V (31.5KHz) or KF-38T (31.25KHz)
E1	Printed wiring board (Video amp. P.W.B.)	CTP410-12

ITC-410 DEFLECTION AMP UNIT

IC201	Integrated circuit	NJM4556S
IC202	Integrated circuit	LA6458S
Q201	Silicon transistor	2SD1203M-Q
Q202	Silicon transistor	2SD1203M-Q
Q203	Silicon transistor	2SC1815-Y
Q204	Silicon transistor	2SA1207-S
Q205	Silicon transistor	2SC458-C
Q206	Silicon transistor	2SC3116-S
Q207	Silicon transistor	2SC458-C
Q208	Silicon transistor	2SD612K-E
⚠ Q209	Silicon transistor	2SB514-E
Q210	Silicon transistor	2SC458-C
Q211	Silicon transistor	2SC458-C
Q212	Silicon transistor	2SC458-C
Q213	Silicon transistor	2SC1815-Y
Q214	Silicon transistor	2SA1015-Y
Q215	Silicon transistor	2SC1815-Y
Q216	Silicon transistor	2SA1015-Y
Q217	Silicon transistor	2SC1815-Y
D201	Silicon diode	1S1588
D202	Silicon diode	DFB03R
D203	Silicon diode	DFB03R
D204	Silicon diode	DFB03R
D205	Silicon diode	DFB03R
D206	Silicon diode	DFB03R
D207	Silicon diode	DFB03R
D208	Silicon diode	1S2471
D209	Silicon diode	1S1588
D210	Light emitting diode	SEL2110R
D211	Silicon diode	1S2471
D212	Silicon diode	EU1
D213	Silicon diode	1S1588 (option)
D214	Silicon diode	1S1588 (option)
D215	Silicon diode	1S1588
D216	Zener diode	HZ6C-2
⚠ D217	Silicon diode (bridge)	RB-152
D218	Zener diode	HZ5C-1
D219	Silicon diode	1S1588
⚠ D220	Silicon diode	RM2Z (option)
⚠ T201	Converter transformer	ST4-A64035-1
VR201	Variable resistor	VM6CK-PH(1S)-1M ohms-B
VR202	Variable resistor	VZ064SH1B-1M ohms-B
VR203	Variable resistor	VZ064SH1B-1M ohms-B
VR204	Variable resistor	VM6CK-PH(1S)200 ohms-B
VR205	Variable resistor	VM6CK-PH(1S)10K ohms-B (option)
VR206	Variable resistor	VM6CK-PH(1S)-1K ohms-B
VR207	Variable resistor	VM6CK-PH(1S)500K ohms-B
VR208	Variable resistor	VM6CK-PH(1S)500 ohms-B
E2	Printed wiring board (Deflection amp. P.W.B.)	CTP410-22

ITC-410 SOCKET PWB UNIT

CN301	Vidicon socket	S7-504B-05
E3	Printed wiring board (Vidicon socket P.W.B.)	CTP410-32

SAFETY PRECAUTIONS

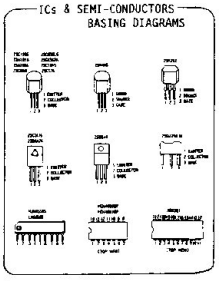
1. Mark with △ on circuit diagram and parts list in this manual is special parts for safety requirement.
   In case of replacing these parts, use the parts specified by [REGAM].
2. There are some places supplying high voltage in this camera. As electric charge sometimes exists even if the power is off, pay more attention to prevent electric shock for servicing.
3. When you service this camera, keep the proper wiring.
   Replace F.M.Board, screws, shield cover, capacitor between vidicon socket and VCA, and other parts removed to service.
   Make sure that vidicon socket is inserted in vidicon surely.
4. Before returning a serviced camera to the customer, the service technician must thoroughly test the camera to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the instrument by the manufacturer has become defective, or inadvertently defeated during servicing.
   Therefore, the following checks are recommended for the continued protection of the customers and service technicians.

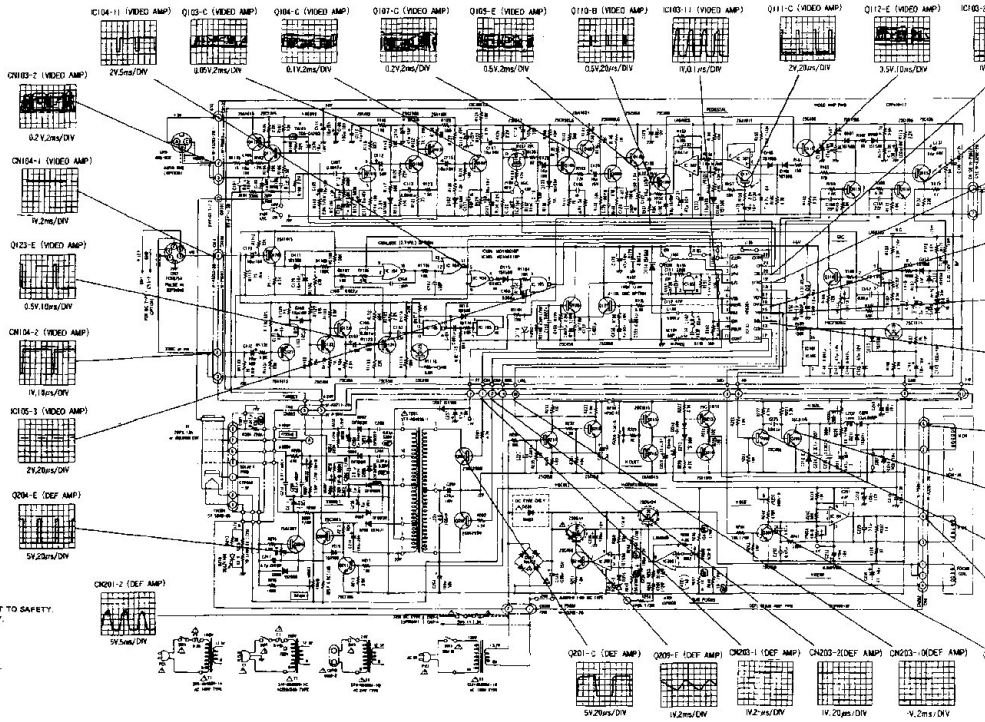
INSULATION
Insulation resistance should not be less than 100M ohms at 500V DC between the main poles and any accessible metal parts, or on flashover or breakdown should occur during the dielectric strength test, to apply 1200V AC for one second (do not exceed 2 second) between the main poles and accessible metal parts.

ITC-410 LIST

△ PC1	Power cord with plug	Cord, SPT2 Plug, YM-8258A(F) (For USA UL type UL approved)
△ PC1	Power cord with plug	Cord, SJT-3 Plug, YM-8853A (For USA CSA type) CSA approved
△ PC1	Power cord with plug	Cord, FS-288 Plug, P-368 (For Europe)
△ PC1-a	Power cord bushing	SR-48-4 (For USA UL type) UL approved
△ PC1-a	Power cord bushing	SW KM-1 (For USA CSA type) CSA approved
△ PC1-a	Power cord bushing	SR-SJ-4 (For Europe) UL approved
△ SW1	Power switch	SW8N CSA approved
△ T1	Power transformer	YTV-A6888-1R (AC220V type) Assembly No. TP-PW98-A (PW-1R) approved
△ T1	Power transformer	YTV-A6888-1C (AC220V/240V type)
△ T1	Power transformer	YTV-A6888-1D (AC230V type)
△ F1-a	Fuse holder	FT-73
△ F1	Fuse	MSP1/4SB x USA (AC230V/240V type)
△ F1	Fuse	MSP1/8SB (USA (DELTA) type) (option)
△ CN1B	Terminal	UAM8-1
△ VR1B	Silicon transistor	2SB562 x 2
△ LA1T	Silicon diode (bridge)	RB-15E
△ D23B	Silicon diode	RM5Z (up-per)
△ C22B	Electrolytic capacitor	CM25V330UR
△ T2B	Converter transformer	YTV-A6885-1

ICs & SEMI-CONDUCTORS BASING DIAGRAMS





REMARKS
1. △MARKED COMPONENTS HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. IN CASE OF REPLACING THESE PARTS, USE THE SPECIFIED PARTS ONLY.
2. VALUES MARKED * ARE SUBJECT TO CHANGE WITHOUT NOTICE.
3. RESISTORS VALUES ARE IN OHMS.
4. CAPACITORS VALUES ARE IN FARADS.
5. RATING OF RESISTORS ARE 0.2 WATTS UNLESS OTHERWISE SPECIFIED.
6. RATING OF CAPACITORS ARE 50 VOLTS UNLESS OTHERWISE SPECIFIED.
7. MARKED (MF) ARE METAL FILM, (T) ARE TANTALUM.

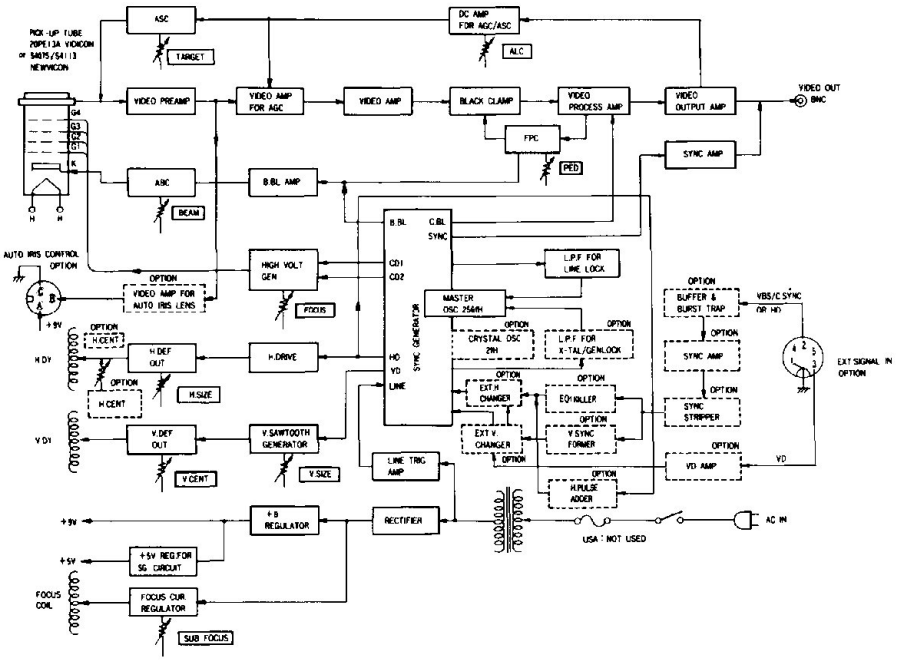
LAST PARTS NO.
*C181, D118, IC108, L103, Q127, R1138, TH101, VC101, VR103, X101, CN104
*C239, D230, IC202, L202, Q217, R287, T201, VR208, CN203
*C301, R381, CN301, F1, L1, PC1, SW1, T1, V1, CN11

SPECIFICATIONS

Camera Tube	2/3" electromagnetic-focusing, electromagnetic-deflection type (1) Separate-mesh vidicon 20PE13A or equivalent (2) Newvicon* S4075 or Chalnicon** (option)
Scanning System	625 lines/50Hz or 525 lines/60Hz, 2:1 interlace
Video Output	VS 1.0 volt(p-p) at 75 ohms (EIA Std., RS-170 or CCIR sync.)
Automatic Light Control Range	20PE13A 100,000:1 (ATC + AGC) S4075: 3,100,000:1 (F1.3 ~ F360 Auto iris lens + AGC)
Automatic Gain Control	Provided
Automatic Beam Control	Provided (Setting adjustable)
Peak White Clipper	Provided (Factory set at 1.2V (p-p) approx.)
Deflection Distortion	(Zone 1) Max. ± 1% within a circle of picture height (Zone 2) Max. ± 2% within a circle of picture width
Sync System	Line-lock 2:1 interlace DC version Crystal control 2:1 interlace Option: Genlock by composite signal separate HD/VD
Genlock Input Signal (option)	Composite sync or separate HD/VD 4 ± 2 volts (p-p) at 75 ohms, negative Composite VS or VBS 1.0 volt(p-p) [0.5 ~ 2 volts (p-p)] at 75 ohms, sync negative
Horizontal Resolution	Vidicon 650 lines or better (center)
Signal-to-Noise Ratio	43dB(p-p/rms) or better
Sensitivity	0.1 lux minimum (20PE13A) or
Faceplate illumination	0.01 lux minimum (S4075)
Scene illumination	(Lens F:1.4, 89% reflectance object) 1.06 lux minimum (20PE13A) or 0.106 lux minimum (S4075)
Ambient Temperature	−10°C to +50°C
Power Requirements	AC 24, 120, 220/240 volts (± 10%); 50Hz/60Hz Option: DC12 volts (10.5 ~ 16V)
Power Consumption	10 watts approx. (AC version) 6 watts approx. (DC version) (option)
Connectors	Video output: BNC Genlock/DC input: DIN 5p (option) Auto iris lens control (option)
Lens Mount	C mount
Dimensions (WHD)	100 x 70 x 218 mm
Weight (excluding lens)	AC 120, 220/240 volts 1.8 kg approx. (4 lbs.) AC 24 volts 1.6 kg approx. (3.5 lbs.) DC 12 volts 1 kg approx. (2.2 lbs.)

* Registered trademark of Matsushita
** Registered trademark of Toshiba

BLOCK DIAGRAM



* Design and specifications are subject to change without notice.

IKEGAMI ELECTRONICS (U.S.A.), INC.

HEADQUARTERS:	37 BROOK AVENUE, MAYWOOD, NEW JERSEY 07607 Phone: (201) 368-9171
WEST COAST OFFICE:	3445 KASHIWA STREET, TORRANCE, CALIF. 90505 Phone: (213) 534-0050
SOUTHWEST OFFICE:	13721 OMEGA ROAD, DALLAS, TEXAS 75234 Phone: (214) 233-2844
MIDWEST OFFICE:	747 CHURCH ROAD, UNITS C4 & C5 ELMHURST, ILL. 60126 Phone: (312) 834-9774
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