General Information

1993
Covers Models:
Goldstar CI-21A80F
Goldstar CI-20A80
Chassis: PC-31A
CRT's:
A34KVK12XX
A48KMX12XX
A51KPD12XX
Remote Control:
105208C (Remote only)
105-208A (Text)
Main Power Button:
441-320B (20")
441-347A (21")
441-315B (14")
Battery Cover: 303-H39A

Matrix

Item	See Model
Safety Notes	Goldstar CI-14A50
Electrical Adjustments	Goldstar CI-14A80FA

Specifications

Video Input System:	PAL-1
Power Requirements:	230Vac ± 20%, 50Hz
Power Consumption:	14" (70W), 20" (80W), 21" (85W)
Intermediate Frequency:	
PAL-B/G:	Vision (Vc): 38.9 MHz
	Sound (Sc): 33.4 MHz
	Colour (Cc): 34.47 MHZ
PAL-D/K:	Vision (Vc): 38 MHz
	Sound (Sc): 32 MHz
	Colour (Cc): 33.57 MHz
PAL-1:	Vision (Vc): 39.5 MHz
	Sound (Sc): 33.5 MHz
	Colour (Cc): 35.07 MHz
SECAM-B/G:	Vision (Vc): 38.9 MHz
	Sound (Sc): 33.4 MHz
	Colour (Cc): Vc-4.25 MHz
	Vc-4.40625 MHz
SECAM-D/K:	Vision (Vc): 38 MHz
	Sound (Sc): 32 MHz
	Colour (Cc): Vc-4.25 MHz
	Vc-4.40625 MHz
Tuning System:	VS (voltage synthesiser), 40 programme memory
Tuning Range:	
TV:	Ch 21 - 69
CATV:	Hyper S21 - S41
Antenna Input Impedance:	UHF 75 ohm unbalanced
Voice Coil Impedance:	8 ohm
OSD:	Menu method
Sound Output:	
(at 50KHZ deviation)	14": 1.0W typ-1.5W max.
	19" & 21": 2.0W typ-4.0W max.

Specifications Cont'd.

Local Buttons:	Menu, OK, Volume up (+)/Down (-), Program up (+)/Down (-)
External (Through Euro-Socket:	
Audio in:	0.5 Vrms ± 3dB, over 10K ohm
Audio out:	0.5 Vrms ± 3dB, below 1K ohm
Video in/out:	1 Vp-p ± 3dB, 75 ohm
R.G.B in:	0.7 Vp-p ± 3dB
Function:	Auto Program
	Manual Program
Teletext:	(FLOF/TOP/LIST)-option
	Auto Sleep
	Quick View
Child lock:	(in case of choosing Lock On, you can power on/off only with remote controller)

Service Adjustments

Safety Precautions

Warning: Before servicing this chassis, read the X-Ray Radiation Precautions, Safety Instructions and Product Safety Notice.

X-Ray Radiation Precautions

1: Excessive high voltage can produce potentially hazardous X-Ray Radiation. To avoid such hazards, the high voltage must not be above the specified limit. The nominal value of the high voltage of this receiver is 27.5kV (24kV 14") at high beam current (maximum brightness) under specified power source. The high voltage must not, under any circumstances, exceed 28.5 kV (25kV 14"). Each time a receiver requires servicing the high voltage should be checked. It is recommended the reading of the high voltage be recorded as part of the service record. It is important to use an accurate and reliable high voltage meter.

2: The only source of X-Ray Radiation in this TV receiver is the picture tube. For continued X-Ray Radiation protection, the replacement tube must be exactly the same type as specified in the parts list.

3: Some parts in this receiver have special safety related characteristics for X-Ray Radiation protection. For continued safety parts replacement should be undertaken only after referring to the Product Safety Notice.

Recommended Safety Parts

Item	Part No.	Description
1	2055-V0642W	CPT (20")
1	2055-V0672D	CPT (21")
1	2055-00791C	CPT (14")
5	150-276M(W. TXT)	
	150-38J(W/OTXT)	Degaussing Coil (20")
5	150-438J	Degaussing Coil (21")
5	150-276F	Degaussing Coil (14")
6	170-851B	Lead Set, ASSY CPT Earth (20" &21")
6	170-851A	Lead Set, ASSY CPT Earth (14")
22	154-106C	FBT (20")
22	154-194D	FBT (21")
22	154-064P	FBT (14")
44	140-278C	Main Switch
Model: CI-20A80 20"		
C805	181-124B	C Electrolytic 200MF 400V
C851, C852	181- 408C	Capacitor 250V 0.47μF (ISKRA)
C854	181-157B	Capacitor DE 1410E222M ACT4K-KD
DB801	162-045A	Diode Bridge, RB-156
F801	131-098B	Fuse 4A 250V HBC Time Delay 5 X 20
FR401	0RF0471H609	Resistor Fusible 4.7 /21W 5% TA52
FR402	0RF0470J607	Resistor Fusible 0.47 1W 5% TA62
FR403	0RF0561H609	Resistor Fusible 5.6 1/2W 5% TA52
FR404, FR406	0RF0201J607	Resistor Fusible 2 1W 5% TA62
FR405, FR803	0RF0101H609	Resistor Fusible 1.0 1/2W 5% TA52
FR601	0RF0102J607	Resistor Fusible 10 1W 5% TA62
FR802	0RF0221H609	Resistor Fusible 2.2 1/2W 5% TA52
IC801	0ISM460520A	IC. Siemens TDA4605-2 8DIP SMPS Controller
L851	150-982A	Coil Line Filter. 70 SQE
Q801	0TR900000AA	Transistor BUZ-90 (Siemens) SIP MOS
T801	151-453A	Transformer SMPS. TDA4605-2 (PC31A-NARR
TH801	163-012A	Thermistor PTC PTH451A102BG180M290
Model: CI-20A80 14" & 21"		
FR404	0RF0391J607	Resistor Fusible 3.90 1W 5% TA62
FR406	0RF0301J607	Resistor Fusible 3 1W 5% TA62

Adjustments

Purity and Convergence Adjustment

Caution: Convergence and Purity have been factory aligned. Do not attempt to tamper with these alignments. However, the effects of adjacent receiver components, or replacement of picture tube or deflection yoke may require the need to re-adjust purity and convergence.

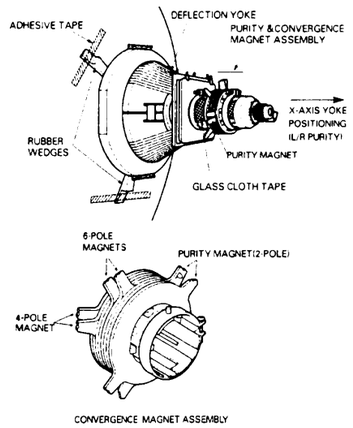

Fig 1.

Purity Adjustment

This procedure does not apply to bonded yoke and picture tube assemblies. The instrument should be at room temperature (60 degrees F or above) for 6 hours and be operating at low beam current (dark background) for approx. 20 - 30 minutes before performing purity adjustments.
Do not remove any trim magnets that may be attached to the bell of the picture tube.

1: Remove the AC power and disconnect the internal degaussing coil.
2: Remove the yoke from the neck of the picture tube.
3: If the yoke has the tape version beam bender, remove it and replace it with a adjustable type beam bender (follow the instructions provided with the beam bender).
4: Replace the yoke on the picture tube neck, temporarily remove the 3 rubber wedges from the bell of the picture tube and then slide the yoke completely forward.
5: Re-connect the internal degaussing coil.
6: Position the beam bender locking rings at the 9 o'clock position and the other 3 pairs of tabs (2, 4 and 6 pole magnets) at the 12 o'clock position.
7: Perform the following steps, in the order given, to prepare the receiver for the purity adjustment procedure:
* Face the receiver in the magnetic north direction.
* Externally degauss the receiver screen with the TV power turned off.
* Turn the TV on for approx. 10 seconds to perform internal degaussing and then turn the TV off.
* Unplug the internal degaussing coil. This allows the Thermistor to cool down while you are performing the purity adjustment. Do not remove the receiver from the magnetic north!
* Turn the receiver on and obtain a red raster by increasing the red bias control (CW) and decreasing the bias controls for the remaining two colours (CCW).
* Attach two round magnets on the picture tube screen at 3 o'clock and 9 o'clock positions, approximately 1" from the edge of the mask (use double-sided tape).
8: Referring to fig. 2, perform the following two steps:

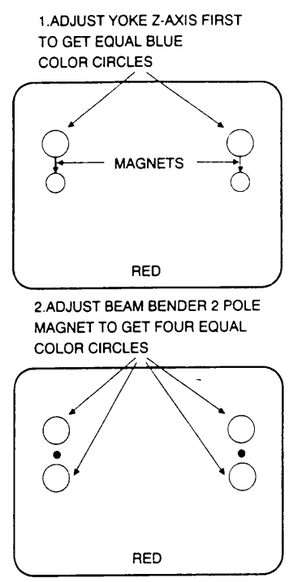

Fig 2.

* Adjust the yoke Z-axis to obtain equal blue circles.
* Adjust the appropriate beam bender tabs to obtain correct purity (four equal circles).

9: After purity is set, tighten the yoke clamp screw and remove the two screen magnets.
10: Remove the AC power and rotate the receiver 180° (facing magnetic south).
11: Re-connect the internal degaussing coil.
12: Turn the receiver on for 10 seconds (make sure the receiver came on) to perform internal degaussing and then turn the receiver off.
13: Unplug the internal degaussing coil.
14: Turn on the receiver and check the purity by holding one round magnet at the 3 o'clock position and, a second round magnet at 9 o'clock position. If purity is not satisfactory repeat steps 8-14.
15: Turn off the receiver and re-connect the internal degaussing coil.

Convergence Adjustment

Caution: This procedure does not apply to bonded yoke and picture tube assemblies. Do not use screen magnets during this adjustment procedure. Use of screen magnets will cause an incorrect display.

1: Remove AC power and disconnect the internal degaussing coil.
2: Apply AC power and set the brightness to the Picture Re-set condition. Set the colour control to minimum.
3: Applying 8V to pin 42 of IC501.
4: Adjust the red, green and blue bias controls to get a dim white line.
5: Remove the AC power and all jumpers.
6: Re-connect the internal degaussing coil and apply AC power.
7: Turn the receiver on for 10 seconds to perform internal degaussing and then turn the receiver off again.
8: Unplug the internal degaussing coil.

Caution: During the convergence adjustment procedure, be very careful not to disturb the purity adjustment tabs or accidentally move them. Purity should be confirmed before proceeding with the convergence adjustments.

Note: Make sure the focus is set correctly on this instrument before proceeding with the following adjustment.

10: Converge the red and blue vertical lines to the green vertical line at the centre of the screen by performing the following steps, (below TABLE):
* Carefully rotate both tabs of the 4-pole ring magnet simultaneously in opposite directions from the 12 o'clock position to converge the red and blue vertical lines.
* Carefully rotate both tabs of the 6-pole ring magnet simultaneously in opposite directions from the 12 o'clock position to converge the red and blue (now purple) vertical lines with the green vertical line.

11: Converge the red and blue horizontal with the green line at the centre of the screen by performing the following steps, (see table below):
* Carefully rotate both tabs of the 4-pole ring magnet simultaneously in the same direction (keep the spacing between the two tabs the same) to converge the red and blue horizontal lines.
* Carefully rotate both tabs of the 6-pole ring magnet simultaneously in the same direction (keep the spacing between the two tabs the same) to converge the red and blue (now purple) horizontal lines with the green horizontal line.
* Secure the tabs previously adjusted by locking then in place with the locking tabs on the beam bender.

RING PAIRS	ROTATION DIRECTION OF BOTH TABS	MOVEMENT OF RED AND BLUE BEAMS
4 POLE	OPPOSITE	B B OR R R
	SAME	B R OR B R
6 POLE	OPPOSITE	B B OR R R
	SAME	B R OR B R

12: While watching the 6 o'clock positions on the screen, rock the front of the yoke in a vertical (up/down) direction to converge the red and blue vertical lines (fig. 3).
13: Temporarily place a rubber wedge at the 12 o'clock position to hold the vertical position of the yoke.

Service Adjustments Cont'd.

Up/Down rocking of the yoke causes opposite rotation of red and blue rasters.

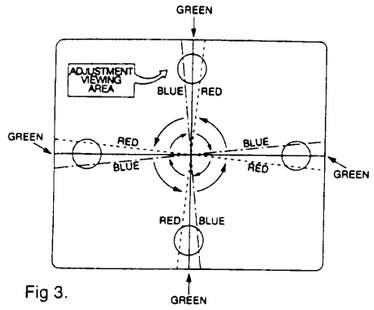

Fig 3.

Left/Right rocking of the yoke causes opposite size change of the red and blue rasters

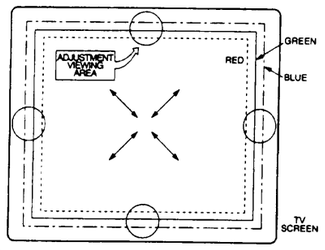

Fig 4.

14: Check the 3 o'clock and 9 o'clock areas to confirm that the red and blue horizontal lines are converged. If the lines are not converged, slightly off-set the vertical tilt of the yoke (move the rubber wedge if necessary) to equally balance the convergence error of the horizontal lines at 3 o'clock and 9 o'clock and, the vertical lines at 6 o'clock and 12 o'clock.

15: Place a 15" piece of glass tape over the rubber foot at the rear of the 12 o'clock wedge.

16: While watching the 6 o'clock and 12 o'clock areas of the screen, rock the front of the yoke in the horizontal (left to right) motion to converge the red and blue horizontal lines (fig. 4).

17: Temporarily place a rubber wedge at the 5 o'clock and 7 o'clock positions to hold the horizontal position of the yoke.

18: Check the 3 o'clock and 9 o'clock areas to confirm that the red and blue vertical lines are converged. If they are not converged, slightly off-set the horizontal tilt of the yoke (if necessary move the temporary rubber wedges) to equally balance the convergence error of the horizontal lines at 6 o'clock and 12 o'clock and the vertical lines at 3 o'clock and 9 o'clock.

19: Using a round magnet confirm purity at the centre, right and left sides and corners. See Purity Adjustment Procedure.

20: Re-confirm convergence and apply a 15" piece of glass tape over the rubber foot at the rear of the 5 o'clock and the 7 o'clock wedges.

Trouble Shooting Guides

DEAD SET (NO RASTER/NO SOUND)
+B voltage at TP1 (J421) = 130-140V
Check stand-by 12V at C821(+)
7-9V → Check/Replace IC501
0V → Check/Repalce FR803, D806, L803

DEAD SET (NO RASTER/NO SOUND)
+B voltage at TP1 (J421) = 112V (Normal)
Check heater elements of CRT are lighting or not
Yes
No → Check/Replace FR404, FR460
Check the voltage at C415(+)
12V
0V → Check/Replace FR402, D402, R432, R433, IC401
Check the voltage of pin 10 of IC501
8V → Check/Replace IC501
0V → Check/Replace ZD402, Q402, D410

DEAD SET (NO RASTER/NO SOUND)
+B voltage at TP1 (J421) = 0V
Check the rectified voltage of main power at C805 (+)
250-380V
0V → Check/Replace FR801, D801, R801
Check the voltage of pin 6 of IC801
8-15V → Check/Replace IC801, Q801. Check the secondary voltage are short
Less than 8V → Check/Replace R811

NO RASTER (SOUND OK)
Heater elements of CRT are NOT lighting
Check the AC voltage at pin 1 of P901 on CPT board.
6.0-6.5Vrms
0Vrms → Check/Replace FR404, FR406
CHeck/Replace CPT

NO RASTER (SOUND OK)
Heater elements of CRT ARE lighting
The screen is blinking
Retrace line is visible → Check/Replace IC501
Check the screen voltage (G2) alignment is correct or not.
Normal
Abnormal → Realign White balance
Check the screen colour
R/G/B
White → Check the 180V line at C424 (+)
Abnormal → Check/Replace FR405, D405
Check the base voltages of Q901-Q903
4-5V → Check/Replace R904-R906 or soldering condition on CPT board
12V → Check/Replace D901-D903

NO SOUND (PICTURE OK)
Check the voltage of SMPS 25V at pin 5 of IC601
Normal (20-25V)
Abnormal → Check/Replace FR802, D805, FR601
Check the voltage of pin 16 of IC501
10-12V
0V → Check the soldering condition around IC601
Check/Replace Q501
Normal
Abnormal → Check/Replace IC01
Check the voltage of pin 10 of IC501
7-9V
Check the voltage of pin 5 of IC501
2-5V → Check/Replace IC601
Check whether the voltage is swing or not at the pin 56 of IC01 according to changing volume up/down.
Abnormal → Check/Replace IC01

NO COLOUR
Check the frequency (4.4 Mhz) at pin 35 of IC501
Normal
Abnormal → Check/Replace X501
Check the voltage of pin 27 of IC501
OVER 5.5V
Below 5V → Check whether the voltage is swing or not at pin 59 of IC501 according to changing colour up/down
Check/Replace IC501
Swing
Not → Check/Replace IC01
Check whether R-Y and B-Y are out at pin 30 and pin 31 of IC501
Yes
No → Check/Replace IC502
Check whether R-Y and B-Y are out at pin 11 and pin 12 of IC503
Yes
No → Check/Replace IC502
Check whether R/G/B is out at pin 20 and pin 19 and pin 18 of IC501
No → Check/Replace IC501

NO PICTURE/NO SOUND (RASTER OK)
Check the voltage of TUNER MB (12V)
Check/Replace FR402, D402 IC401
Check/Replace Tuner
Check the tuning condition
Check the 33V at C418 (+)
Check/Replace FR403, ZD401, D403

NO TELETEXT
Check the voltage 12V at T J06
Normal
Abnormal → Check the 12V line to be correct
Check the voltage of TC46 (+)
4.8-5.2V
Abnormal → Check whether video signal is in at the pin 27 of TIC01 or not
Check/Replace TIC07, TIC08
Yes
No → Check whether video signal is in at the pin 4 of TIC06 or not
Yes
No → Check/Replace TIC06
Check I^2C Bus (SDA, SCL)
Yes
No → Check the CVBS line
Check FB1 at pin 17 of TIC02
Yes
No → Check/Replace TIC02, TIC04, TIC05, μ-COM (IC01). Check all the connections of SDA SCL
Check the R.G.B connection from TIC02 of teletext to IC501 of main board. Check/Replace TQ01, 02, 03 → Check/Replace TIC02

* If TELETEXT Sync. is not correct the teletext picture moves to the left or right. In this case, check the characteristics of TC19 and TC30

* If TELETEXT data error occurs readjust channel memory or VCO (VIF & AFT) adjustment.

Language option for Teletext IC (SDA20160 : TIC04)

PIN NO	AREA			
	WESTERN EUROPE		EASTERN EUROPE	TURKEY
23	LOW (0)	HIGH (1)	LOW (0)	HIGH (1)
24	LOW (0)	HIGH (1)	HIGH (1)	LOW (0)
TIC02	SDA52485C1		SDA52485C2	SDA52485TR
REMARK	LOW (0)	GROUND	HIGH (1)	B+/OPEN

Table of receiving system

The Table of Receiving System					
Circuit No.	B / H	B / G	D / K	I	Remarks
R06	1.5K	1.3K	1.2K	1.5K	
R281	-	-	22	-	CARBON
R206	-	-	1.5K	-	FILM
R202	6.8K	6.8K	10K	6.8K	RESISTOR
L203	6.8UH	6.8UH	3.9UH	6.8UH	INDUCTOR
L204	33UH	15UH	5.6UH	8.2UH	INDUCTOR
C281	TIN WIRE	TIN WIRE	47pF	TIN WIRE	CAP. TUBULAR
C282	-	-	47u/16V	-	CAP. CE
C283	-	-	103p	-	CAP. TUBULAR
C284	-	-	18p	-	CAP. TUBULAR
C285	-	-	47p	-	CAP. TUBULAR
C525	-	-	0.1u 50V	-	CAP. MYLAR
C526	-	-	224J 50V	-	
C550	-	-	47u/16V	-	CAP. CE
C551	-	-	0.22u/50V	-	CAP. CERAMIC
C851	474 250V	474 250V	474 250V	-	X-CAPACITOR
C853	TIN WIRE	4700/4KV	4700/4KV	TIN WIRE	Y-CAPACITOR
C854	2200/2KV	4700/4KV	4700/4KV	2200p/4KV	
G21	DIA114ES	DIA114ES	DIA114ES	-	TRANSISTOR
G22	DIA114ES	DIA114ES	DIA114ES	-	TRANSISTOR
G23	DIA114ES	DIA114ES	DIA114ES	-	TRANSISTOR
IC281	-	-	LA7975	-	S-CONVERTOR
IC501	TDA8362	TDA8362	TDA8362	TDA8361	JUNGLE
IC503	-	-	TDA8395/N	-	SECAM
Z101	G1966M	G1966M	Ki950	Ji953M	SAW FILTER
Z201	TPS5.5M	TPS5.5M	TPS5.5M	TPS6.0M	FILTER TRAP
Z202	TPS6.5M	TPS6.5M	TPS6.5M	-	
Z203	5.5M	5.5M	6.0M	6.0M	FILTER BPF
Z281	-	-	CS8500	-	RESONATOR
Ti81	232B	232B	232D	232E	TUNER
		232C			TUNER HYPER
J02	-	-	-	TIN WIRE	
J94	-	-	-	TIN WIRE	
J128	TIN WIRE	TIN WIRE	-	TIN WIRE	

Table of inch conversion

CIRCUIT NO	14"	20"	21"	REMARK
C.P.T	A34KVK12XX	A48KMX12XX	A51KPD12XX	CPT
D. Y	061M	151D	100F	153-
T401	064P	106C	194D	FBT (154-)
C421	772	862	822	MPP 1.6KV
C422	364	394	474	MPP 200V
L402	224L	224C	224C	COIL (150-)
L901	10uH	10uH	100uH	COIL
FR404	2	2	3.9	RES. FUSIBLE 1W
FR406	3	2	3	RES. FUSIBLE 1W
R05	1.5K	1.8K	1.8K	RES. FIXED 1/6W
R14	820	330	330	RES. FIXED 1/6W
R15	12K	6.8K	6.8K	RES. FIXED 1/6W
R20	2.7K	4.7K	4.7K	RES. FIXED 1/6W
R22	6.8K	4.7K	5.6K	RES. FIXED 1/6W
R317	22K	22K	27K	RES. FIXED 1/6W
R437	68K	56K	56K	RES. FIXED 1/2W
R438	82K	68K	68K	RES. FIXED 1/2W

Main Diagram