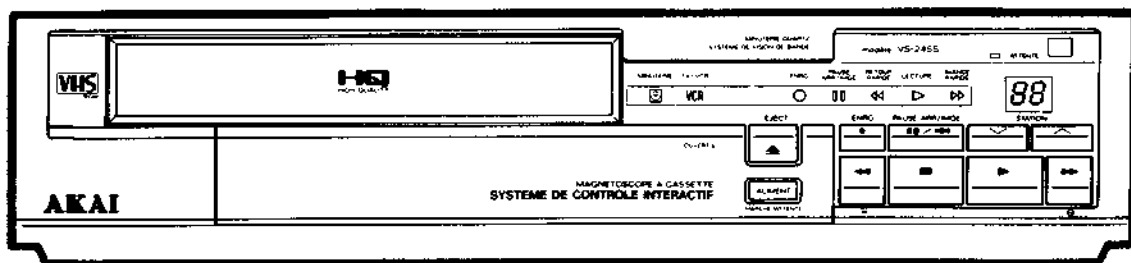


AKAI SERVICE MANUAL



MODEL VS-245S

VIDEO CASSETTE RECORDER

MODEL **VS-240SK**

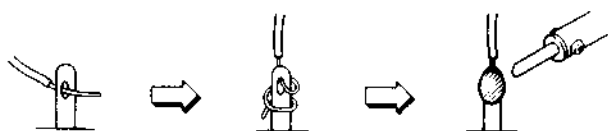
MODEL **VS-244/245S**

MODEL **VS-247/248S**

★ SAFETY INSTRUCTIONS

PRECAUTIONS DURING SERVICING

- Parts identified by the Δ symbol parts are critical for safety. Replace only with parts number specified.
- In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with specified replacements.
Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
- Use specified internal wiring. Note especially:
 - 1) Wires covered with PVC tubing
 - 2) Double insulated wires
 - 3) High voltage leads
- Use specified insulating materials for hazardous live parts. Note especially:
 - 1) Insulation Tape
 - 2) PVC tubing
 - 3) Spacers (Insulating Barriers)
 - 4) Insulation sheets for transistors
 - 5) Plastic screws for fixing microswitch (especially in turntable)
- When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



- Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).

- Check that replaced wires do not contact sharp edged or pointed parts.
- Also check areas surrounding repaired locations.
- Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

SAFETY CHECK AFTER SERVICING

Confirm the specified insulation resistance between power cord plug prongs and externally exposed parts of the set is greater than 10 M ohms. but for equipment with external antenna terminals (tuner, receiver, etc.) and is intended for [C] or [A], specified insulation resistance should be headphone jacks line-in-out jacks etc. more than 2.2 M ohms (ground terminals, microphone jacks).

PRECAUTIONS FOR LITHIUM BATTERY

The lithium battery may explode when heated excessively.

[OBSERVE THE FOLLOWING WHEN REPLACING]

- Replace with the same make and type only.
- Use soldering iron in "recommended way" only.
- Place battery in correct polarity.
- Do not short the terminals.
- Do not recharge battery.
- Do not dispose of battery in fire.



(DANGER)



(RECOMMENDED WAY)

★ INFORMATION

SYMBOLS FOR PRIMARY DESTINATION

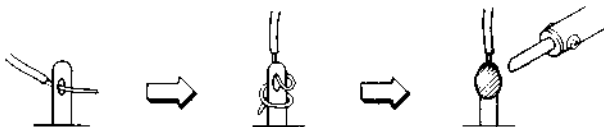
Alphabet indicates the destination of the units as listed below.

Symbols	Principal Destinations
[A]	USA
[B]	UK
[C]	Canada
[E]	Europe (except UK)
[J]	Japan
[S]	Australia
[V]	W. Germany only
[U]	Universal Area
[Y*]	Custom version

★ INSTRUCTION DE SECURITE

PRECAUTIONS A OBSERVER PENDANT LA REPARATION

1. Les pièces identifiées par le symbole Δ sont des pièces critiques pour la sécurité. Elles ne doivent être remplacées que par des pièces de numéro spécifié.
2. Outre la sécurité, certaines pièces et ensembles sont spécifiés pour être conformes à des règlements tels que ceux s'appliquant à l'émission de parasites. Ils doivent aussi être remplacés par des pièces de rechange spécifiées.
Exemples: Convertisseurs RF, unités tuner, sélecteurs de déparasitage, filtres de déparasitage, etc.
3. Utiliser le câblage interne spécifié. Noter spécialement:
 - 1) Fils recouverts de tube PVC
 - 2) Fils à double isolement
 - 3) Fils haute tension
4. Utiliser des matériaux d'isolement spécifiés pour les parties sous tension dangereuses. Noter spécialement:
 - 1) Bande d'isolement
 - 2) Tube en PVC
 - 3) Rondelles (barrières d'isolement)
 - 4) Feuilles d'isolement pour transistors
 - 5) Vis en plastique de fixation pour microrupteur (particulièrement pour tourne-disque)
5. Lors du remplacement de composants du côté courant alternatif primaire (transformateurs, cordons d'alimentation, condensateurs de déparasitage, etc.), enrayer soigneusement les extrémités des fils autour des bornes avant de procéder au soudage.



6. Faire attention à ce que les fils n'entrent pas en contact avec des parties produisant de la chaleur (radiateurs, résistances à film oxyde métal, résistances fusibles, etc.)
7. Contrôler que les fils remplacés n'entrent pas en contact avec des bords tranchants ou des parties pointues.
8. Contrôler aussi les zones voisines des endroits réparés.
9. Faire attention à ce que des corps étrangers (vis, gouttelettes de soudure, etc.) ne demeurent pas à l'intérieur de l'appareil.

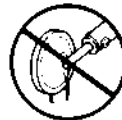
CONTROLE DE SECURITE APRES LA REPARATION

Vérifier que la résistance d'isolement spécifiée entre les bornes du cordon d'alimentation et les pièces exposées extérieures de l'appareil soit supérieure à 10 Mohms, mais pour l'équipement avec des bornes d'antennes extérieures (tuner, ampli-tuner, etc.) prévue pour **C** ou **A**, la résistance d'isolement spécifiée doit être supérieure à 2,2 Mohms (bornes de terre, prises de microphones, prises de casque, prises d'entrée-sortie de ligne, etc.)

PRECAUTIONS A PRENDRE POUR LA PILE AU LITHIUM

La pile au lithium risque d'exploser lorsqu'elle est trop chauffée.
(OBSERVE LES POINTS SUIVANTS LORS DU REMPLACEMENT)

- Ne remplacer qu'avec la même marque et le même type.
- N'utiliser le fer à souder que de la "manière recommandée".
- Placer la pile en respectant la polarité.
- Ne pas court-circuiter les bornes.
- Ne pas recharger la pile.
- Ne pas jeter la pile au feu.



(DANGER)



(RECOMMENDED WAY)

★ INFORMATION

SYMBOLES POUR DESTINATION ORIGINELLE

Les lettres de l'alphabet indiquent la destination des unités come il est indiqué dans la liste ci-dessous.

Symboles	Destination Originelle
A	les Etats Unis
B	la Grande Bretagne
C	le Canada
E	l'Europe
J	le Japan
S	l'Australie
V	l'Allemagne
U	Universel aire
Y*	Douane

SPECIFICATIONS

Format	VHS Standard
Video recording system	Rotary, slant azimuth two-head helical scan system
Rotary Heads	Two video heads
RF input VS-244/245/247/248S VS-240SK	System L VHF: ch A to C, 1 to 6 UHF: ch 21 to 69 CABLE: ch B-Q (VS-247/248S) System D, K VHF: ch 1 to 3, 4 to 9 UHF: ch 21 to 69
RF output VS-244/245/247/248S VS-240SK	System L type modulation UHF: ch 30 to 39 adjustable (preset ch 36) System K type modulation VHF: ch 4, 5 switchable (preset ch 5)
Recording (line input)	SECAM, CCIR
Playback (line input)	SECAM, CCIR
Video Line input level Line output level S/N ratio Horizontal resolution	0.5 to 2.0 V _{p-p} /75 ohms, unbalanced 1.0 V _{p-p} /75 ohms, unbalanced More than 45 dB More than 220 lines
Audio Line input level Line output level S/N ratio Frequency response	-8 dBm/50 kohms, unbalanced -6 dBm/1 kohms, unbalanced More than 40 dB 70 to 10,000 Hz
Recording/Playback time	240 min. with E-240 cassette
Tape speed (SP Mode)	23.39 mm/sec
Quick finder (SP Mode)	Approx. 7 times normal speed
FF, REW time	Approx. 5 min. with E-240 cassette
Timer Programs Clock reference	4 programs/2 week and sleep timer Quartz crystal
Display	TV screen (Tape counter, Timer etc.)
Power requirements	220V AC, 50 Hz
Power consumption	29W
Operating temperature	5°C to 40°C (41°F to 104°F)
Dimensions	425 (W) x 95 (H) x 345 (D) mm
Weight	5.9 kg

* For improvement purposes, specifications and design are subject to change without notice.

SPÉCIFICATIONS

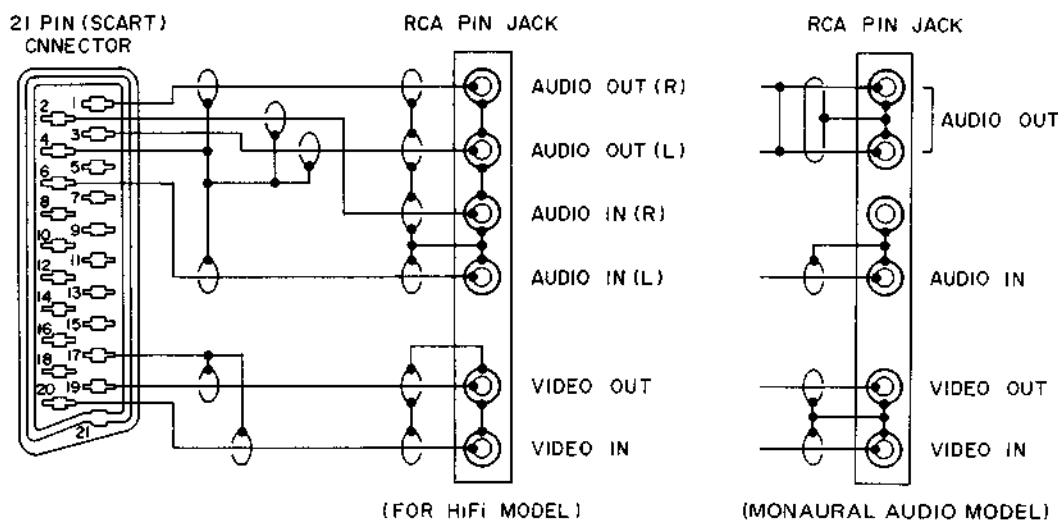
Format	VHS standard
Système d'enregistrement vidéo	Système à deux têtes rotatives, à azimutage incliné, à balayage hélicoïdal
Têtes rotatives	Deux têtes vidéo
Entrée RF (HF) VS-244/245/247/248S VS-240SK	Système L Canaux VHF A à C, 1 à 6 Canaux UHF 21 à 69 Canaux Câble B à Q Système D, K Canaux VHF 1 à 3, 4 à 9 Canaux UHF 21 à 69
Sortie RF (HF) VS-244/245/247/248S VS-240SK	Système L, type modulation, canaux réglables UHF 30 à 39 (préréglé sur canal 36) Système K, type modulation, canaux commutable VHF 4, 5 (préréglé sur canal 5)
Enregistrement (entrée de ligne)	SECAM, CCIR
Reproduction (sortie de ligne)	SECAM, CCIR
Vidéo Niveau d'entrée de ligne Niveau de sortie de ligne S/B Résolution horizontale	0,5 à 2.0 Vp-p/75 ohms, assymétrique 1,0 Vp-p/75 ohms, assymétrique Plus de 45 dB Plus de 220 lignes
Audio Niveau d'entrée de ligne Niveau de sortie de ligne S/B Réponse en fréquence	-8 dB/50 kohms, assymétrique -6 dB/1 kohm, assymétrique Plus de 40 dB 70 Hz à 10.000 Hz
Durée enregistrement/reproduction	240 mn avec cassette E-240
Vitesse de bande	23,39 mm/s.
Recherche rapide	Approx. 7 fois la vitesse normale
Durée avance rapide/rembobinage	Approx. 5 mn avec acassette E-240
Minuterie Programmes Référence d'horloge	4 programmes/2 semaines et minuterie sommeil Cristal de quartz
Affichage	Ecran TV (compteur de bande, minuterie, etc.)
Alimentation	220 V CA, 50 Hz
Consommation	29 W
Température de fonctionnement	5°C à 40°C
Dimensions	425 (L) x 95 (H) x 345 (P) mm
Poids	5.9 kg

* Par suite d'améliorations, la présentation et les spécifications sont susceptibles de modification sans préavis.

I. EXPLANATION OF 21 PIN (SCART) CONNECTOR

The RCA PIN connectors have been used for LINE IN/OUT terminals with the conventional models, while a 21 PIN (SCART) connector is used with this model.

An adaptor shown below may be necessary in order to conduct an alignments by connecting test equipments with LINE IN/OUT terminals in same manner as with the models using the RCA PIN connectors.



- NOTES:**
1. Use JACK PLATE VIDEO (Part number EJ-354211) for RCA PIN CONNECTOR.
 2. The 21 PIN (SCART) connector for this adaptor will not be supplied, commercially available parts should be used.

I. EXPLICATIONS A PROPOS DU CONNECTEUR A 21 BROCHES (PERI-TELE)

Les connecteurs à broches RCA ont été utilisés pour les bornes d'entrée/sortie de ligne (LINE IN/OUT) avec les modèles conventionnaux alors que le connecteur à 21 broches (PERI-TELE) est utilisé avec ce modèle.

Un adaptateur, indiqué ci-dessous, pourrait être nécessaire afin d'effectuer un alignement en connectant des appareillages d'essais avec les bornes d'entrée/sortie de ligne (LINE IN/OUT) de la même manière qu'avec les modèles utilisant les connecteurs à broches RCA.

- REMARQUE:**
1. Utilisez une plaque de prise vidéo (JACK PLATE VIDEO) (Numéro de pièce détachée EJ-354211) pour un connecteur à broche RCA.
 2. Le connecteur à 21 broches (PERI-TELE) pour cet adaptateur ne sera pas fourni, des pièces détachées disponibles dans le commerce doivent être utilisées.

II. SAFETY LOCK SYSTEM

This VCR can be locked to prevent access by small children. This feature can be operated by the remote control only.

To lock:

With the VCR POWER ON, depress and hold the remote control's STOP button for 4 seconds. An "L" will momentarily flash on the PROGRAM display. Tape play will not function until the VCR is unlocked.

To unlock:

Depress and hold the remote control's PLAY button for 4 seconds. Even if the POWER is turned off, the VCR will remain locked until released.

II. SYSTÈM DE VERROUILLAGE DE SÉCURITÉ

Ce magnéscope à cassettes peut être verrouillé afin d'en empêcher l'accès à des enfants en bas âge. Cette caractéristique fonctionne seulement avec la télécommande.

Pour verrouiller:

L'alimentation (ALIMENT) du magnéscope à cassettes étant sous tension, pressez et maintenez engagée la touche d'arrêt (STOP) de la télécommande durant 4 secondes. Un "L" clignotera momentanément sur l'affichage de programme (PROGR.). La lecture de bande ne fonctionnera pas jusqu'à ce que le magnéscope à cassettes soit déverrouillé.

Pour déverrouiller:

Pressez et maintenez engagée la touche de LECTURE durant 4 secondes. Le magnéscope à cassettes restera verrouillé jusqu'à relâchement du verrouillage même si l'alimentation (ALIMENT) est mise hors circuit.

III. RESETTING MEMORY OF CPU

III. REMISE DE LA MEMOIRE DE L'UNITE CENTRALE DE TRAITEMENT

3-1. RESETTING OF OPERATION/SYSCON CPU (ONLY)

- 1) Disconnect AC power cord then disconnect P951 (back up) on the OPERATION PC Board.
- 2) Connect P851 back in its place.
- 3) The OPERATION and SYSCON CPU are reset with above steps.

NOTE: With this procedure, presetted TV stations are not reset. For resetting of TV stations, refer to 3-2.

3-2. RESETTING OF TV STATIONS AND OPERATION/SYSCON CPU

- 1) Disconnect AC power cord.
- 2) While holding "REC" and "REW" buttons depressed simultaneously, connect AC power cord. The TIMER display will flash.
- 3) Disconnect AC power cord again to stop flashing TIMER display.
- 4) Presetted TV stations and OPERATION/SYSCON CPU are reset with above steps.

The chart bellow shows each function after the reset.

CLOCK	SUN 0:00 00
CHANNEL	Displays lowest channel number
DISPLAY	Flashes clock display
CHILD LOCK	The same condition as before reset
TAPE COUNTER	0000
TV/VCR	TV

3-1. REMISE DE MODE/DU PUPITRE DE COMMANDE DE L'UNITE CENTRALE DE TRAITEMENT (SEULEMENT)

- 1) Débrancher le cordon d'alimentation de courant alternatif et, ensuite, débrancher le P951 (alternative) sur la tablette de circuits imprimés.
- 2) Brancher le P951 de nouveau sur sa place.
- 3) Le mode et le pupitre de commande de l'unité centrale de traitement sont remis au moyen des mesures précitées.

NOTE: Les stations de télévision réglées d'avance ne sont pas remises à l'aide de ce procédé. Voir le 3-2 pour remettre des stations de télévision.

3-2. REMISE DES STATIONS DE TELEVISION ET DU MODE/DU PUPITRE DE COMMANDE DE L'UNITE CENTRALE DE TRAITEMENT

- 1) Débrancher le cordon d'alimentation de courant alternatif.
- 2) Relier le cordon d'alimentation de courant alternatif en s'appuyant sur les poussoirs "ENRG." et "RETOUR RAPIDE" en même temps. L'affichage du chronométrage étincellera.
- 3) Débrancher le cordon d'alimentation de courant alternatif de nouveau pour arrêter l'affichage du chronométrage étincillant.
- 4) Les stations de télévision réglées d'avance et le mode/le pupitre de commande de l'unité centrale de traitement sont remis au moyen des mesures précitées.

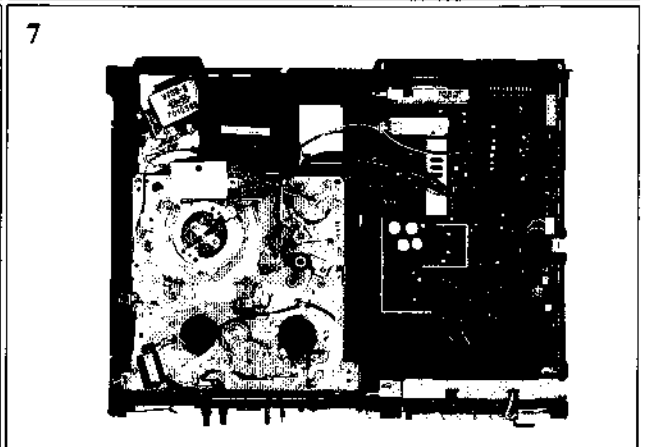
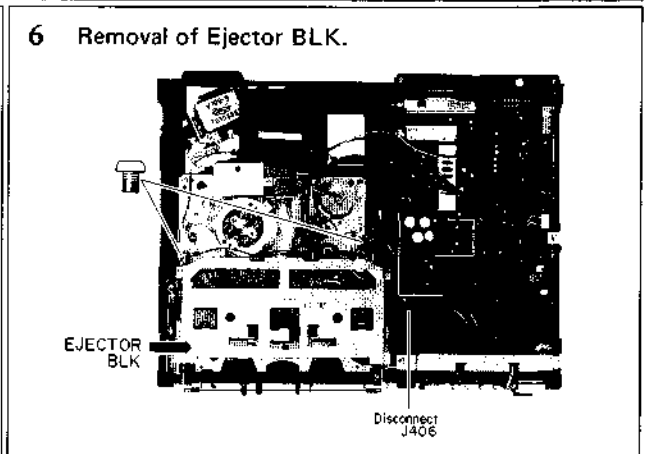
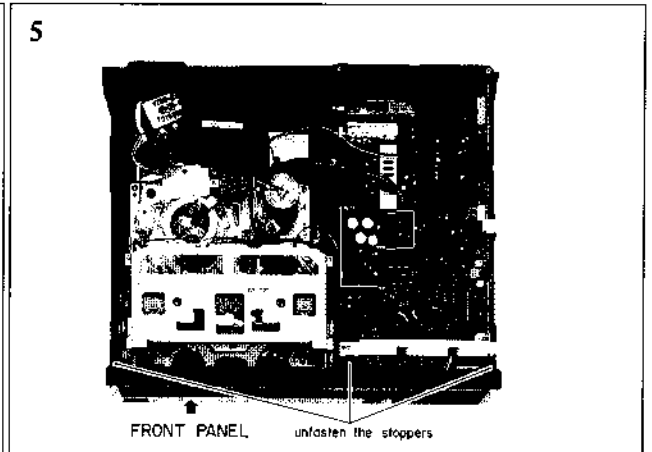
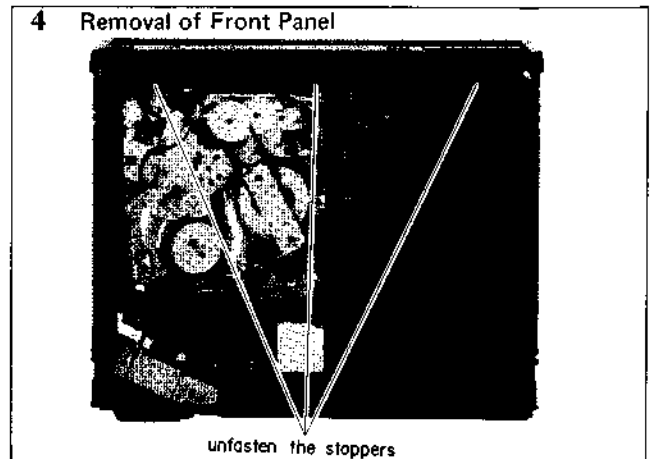
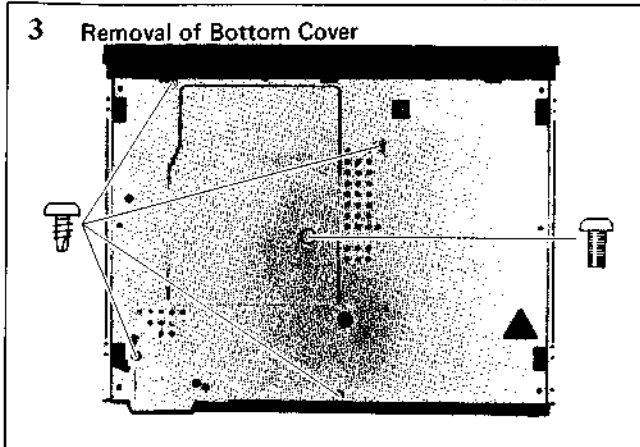
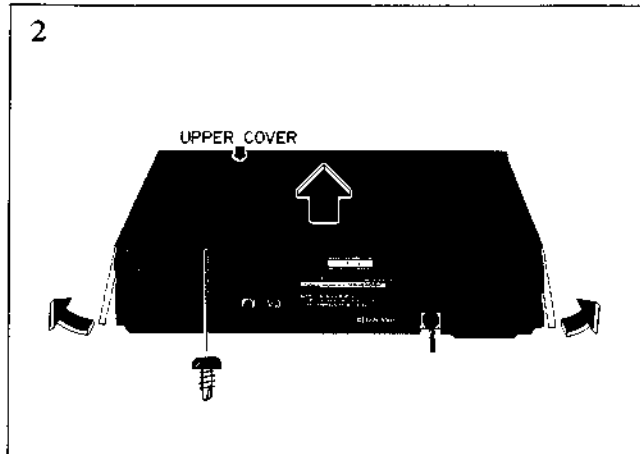
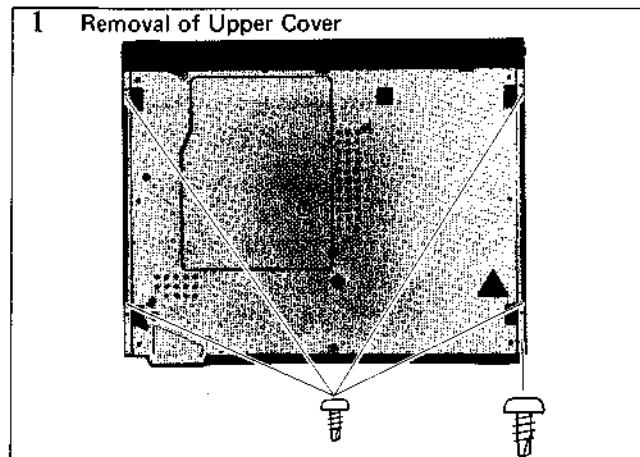
Le tableau ci-dessous montre chaque fonction après la remise.

Horloge	Dimanche 0:00 00
Canal	Il affiche le numéro de canal le moins élevé
Verrouillage de sécurité	Dans les mêmes conditions qu'avant la remise
Compteur de bande	0000
TV/VCR	TV

IV. DISASSEMBLY/DEMONTAGE

In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the photographs. Reassemble in reverse order.

Au cas d'une panne, etc. qui requiert le démontage, veuillez l'effectuer selon la séquence indiquée sur les photos. Effectuer le remontage selon la séquence inverse.



* Photographs employed in this paragraph is model VS-240SK.

* C'est le modèle VS-240SK qui se réfère aux photos employées dans ce paragraphe.

V. CONTROLS/COMMANDE

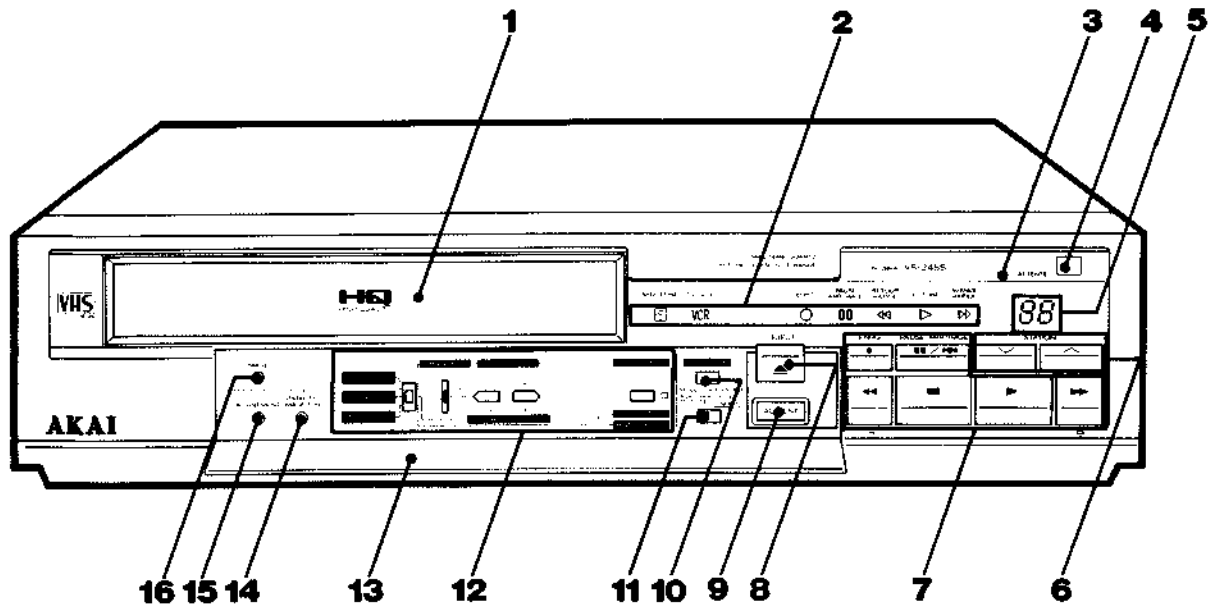


Fig. 5-1 Front

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Load the video cassette tape here. 2. VCR status display.
Tells you what the VCR is doing. 3. STAND-BY indicator.
Tells you the power cord is plugged in. 4. To receive the remote control signal from the Akai Wireless Remote Control Unit.
* Keep this window clean for remote control operation. 5. CHANNEL display. 6. CHANNEL selector.
To select a preset channel with the built-in tuner of the VCR. 7. Tape transport buttons.
To run the tape for recording or playback. 8. EJECT button.
To eject the video cassette tape. 9. POWER button.
To turn on and off the Akai VCR. 10. TIMER button.
To stand by for automatic recording. 11. AUX (CANAL PLUS)/TUNER (TV) selector
To select input signal Decoder or AUX. 12. Tuning controls.
To tune in preset channels. 13. Tuning control cover panel. 14. STILL TRACKING control.
To fine tune the STILL play back picture. 15. TRACKING control.
To fine tune the play back picture. 16. SHARP/SOFT PICTURE control.
To soften or sharpen the play back picture. | <ol style="list-style-type: none"> 1. Chargez la bande cassette vidéo ici. 2. Affichage de l'état du magnétoscope à cassettes.
Vous indique ce que le magnétoscope à cassettes est en train de faire. 3. Indicateur d'ATTENTE.
Vous indique que le cordon d'alimentation est branché. 4. Pour recevoir le signal de télécommande provenant dusystème de télécommande sans fil Akai.
* Gardez cette fenêtre propre pour l'utilisation de la télécommande. 5. Affichage de STATION. 6. Sélecteur de STATION.
Pour sélectionner une station pré réglée avec le tuner incorporé du magnétoscope à cassettes. 7. Touches de transport de la bande.
Pour faire défiler la bande pour l'enregistrement ou la reproduction. 8. Touche d'éjection (EJECT).
Pour éjecter la bande cassette vidéo. 9. Commutateur d'alimentation (ALIMENT)
Pour mettre sous tension et hors circuit le magnétoscope à cassettes Akai. 10. Touche de MINUTERIE.
Pour une attente d'enregistrement automatique. 11. Sélecteur d'ENTREE AUX (CANAL PLUS)/TUNER (TV).
Pour sélectionner l'entrée décodeur ou AUX. 12. Commandes de syntonisation (REGL. FIN)
Pour syntoniser des stations pré réglées. 13. Couvercle des commandes de syntonisation. 14. Commande de STABILITE IMAGE FIXE.
Pour syntoniser finement l'image lors d'un arrêt sur image. 15. Commande d'ALIGNEMENT.
Pour syntoniser finement l'image reproduite. 16. Commande de CONTOUR DOUX/DUR.
Pour adoucir ou contraster l'image reproduite. |
|---|--|

VS-244/245/247/248S

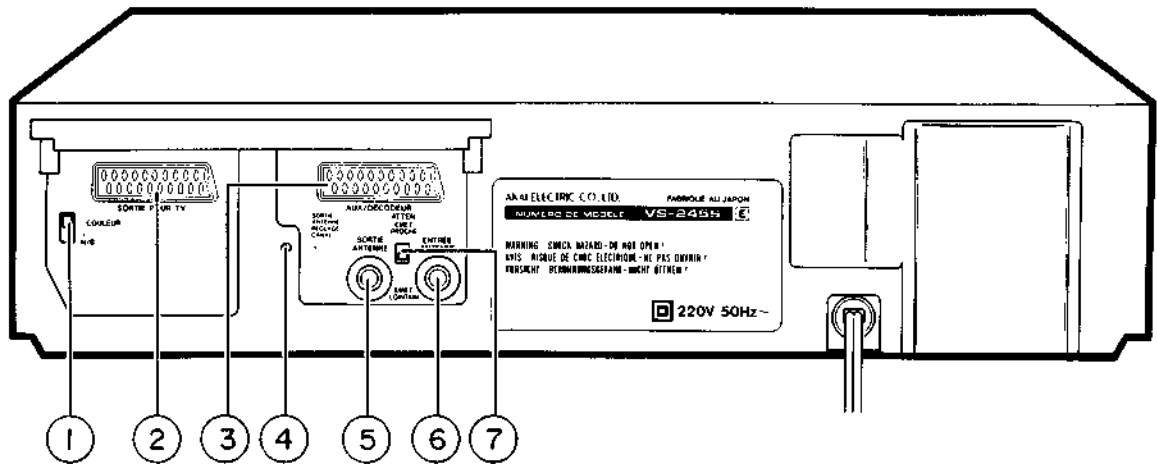


Fig. 5-2 Rear

1. VIDEO MODE SELECTOR
2. OUTPUT CONNECTOR FOR TV
3. AUX/DECODER CONNECTOR
4. RF OUT CHANNEL ADJUST
5. RF. OUT
6. ANT. IN
7. LOCAL/DX ATTENUATOR SWITCH

1. SELECTEUR DE MODE VIDEO
2. SORTIE POUR TV
3. AUX/DECODER
4. SORTIE ANTENNE REGLAGE CANAL
5. SORTIE ANTENNE
6. ENTREE ANTENNE
7. ATTENUATEUR EMET. PROCH/EMET. LOINTAIN

VS-240SK

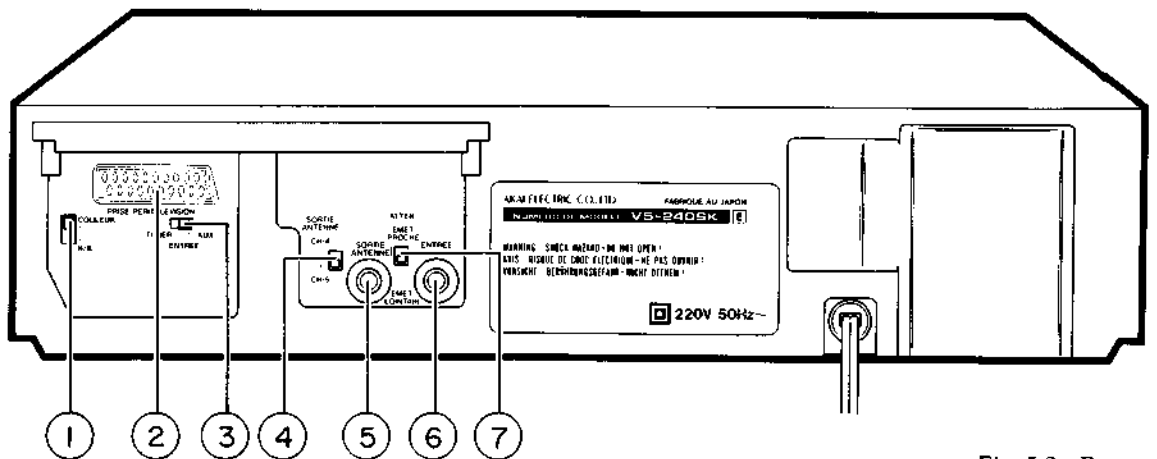


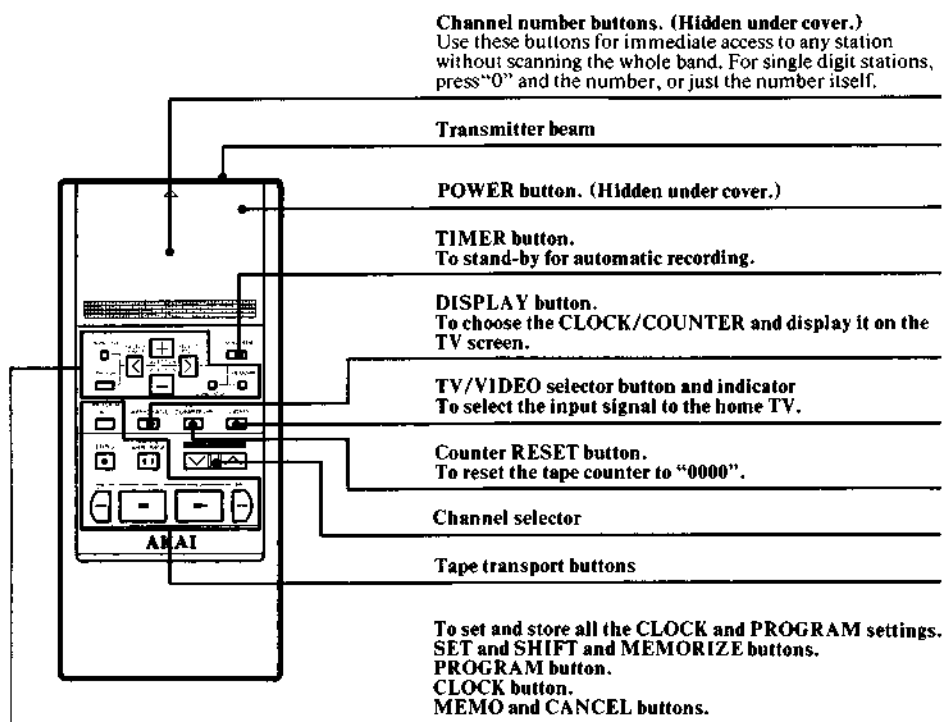
Fig. 5-3 Rear

1. VIDEO MODE SELECTOR
2. OUTPUT CONNECTOR
3. INPUT SELECTOR
4. RF OUT CHANNEL SELECTOR
5. RF. OUT
6. ANT. IN
7. LOCAL/DX ATTENUATOR SWITCH

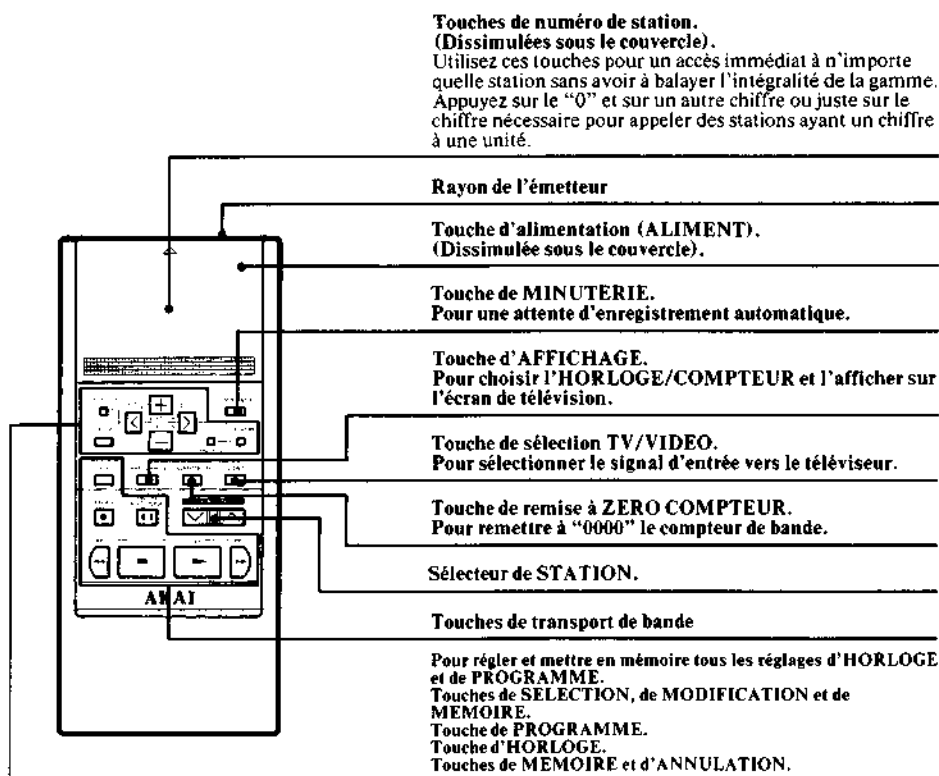
1. SELECTEUR DE MODE VIDEO
2. PRISE PERITELEVISION
3. SELECTEUR DE ENTREE
4. SORTIE ANTENNE REGLAGE CANAL
5. SORTIE ANTENNE
6. ENTREE ANTENNE
7. ATTENUATEUR EMET. PROCH/EMET. LOINTAIN

REMOTE CONTROL UNIT/SYSTÈME DE TÉLÉCOMMANDE

The remote control contains operation buttons which are used the same way as the operation buttons on the front panel of the Akai VCR, and many which appear on the remote control only. The remote control can be used from a distance of up to 5 meters.



L'unité de télécommande comporte des touches de fonction qui s'utilisent de la même manière que celles du panneau frontal du magnétoscope à cassettes Akai et de nombreuses autres qui ne se trouvent que sur l'unité de télécommande. L'unité de télécommande peut être utilisée d'une distance allant jusqu'à 5 mètres.



VI. PRINCIPAL PARTS LOCATION

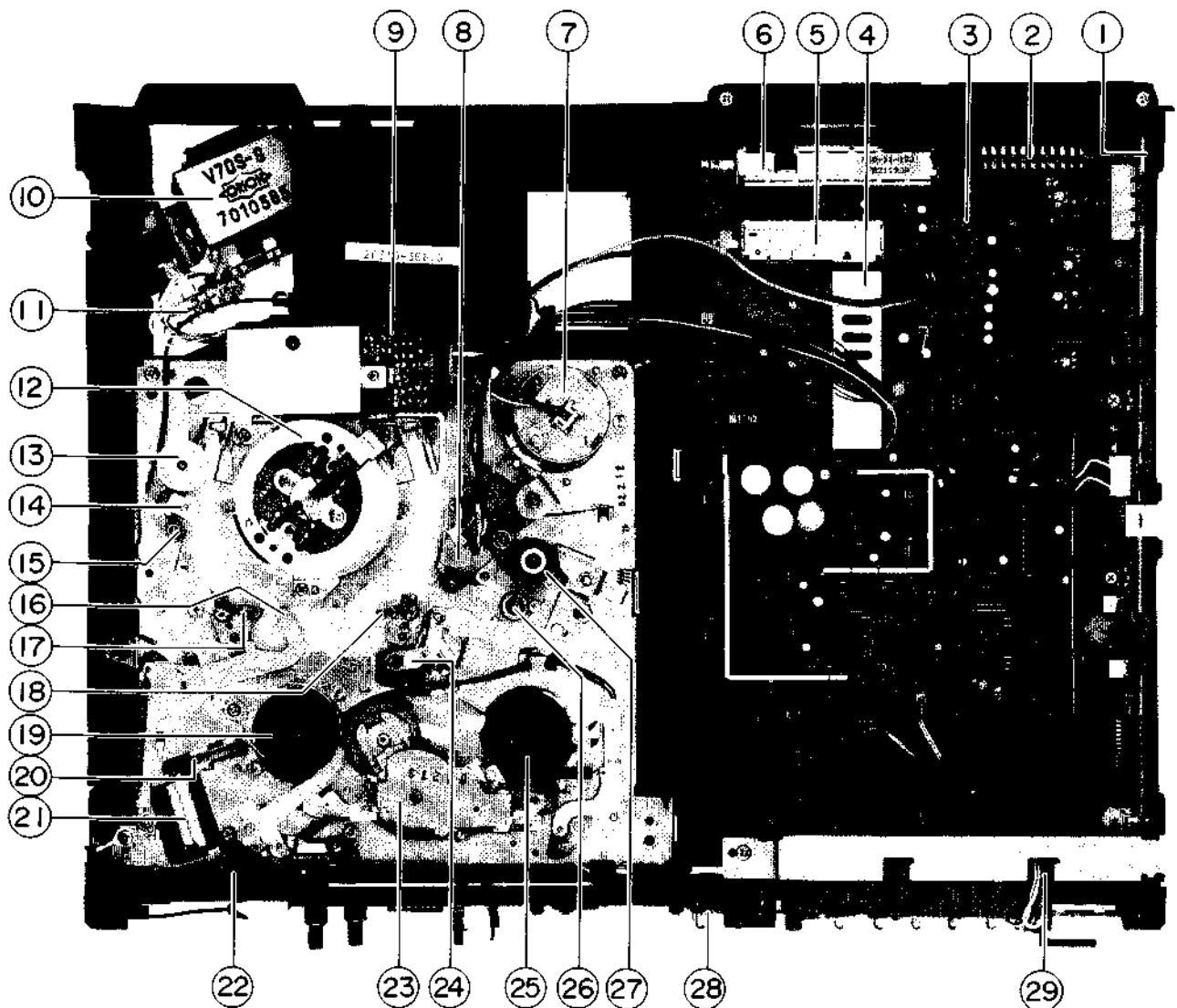


Fig. 6-1 Top View

- | | |
|---|--------------------------|
| 1. MAIN (VIDEO) PCB | 16. TENSION ARM |
| 2. CONNECTOR PCB (VS-240SK model only)
CANAL PLUS PCB (VS-244/245/247/248S model only) | 17. LOADING LEADER LEFT |
| 3. MAIN PCB | 18. LOADING LEADER RIGHT |
| 4. VIF UNIT | 19. SUPPLY REEL TABLE |
| 5. TUNER UNIT | 20. SYNCHRO BELT |
| 6. RF-CONVERTER | 21. LOADING MOTOR (M903) |
| 7. CAPSTAN MOTOR (M902) | 22. REC SAFETY SW (SW1) |
| 8. AUDIO/CONTROL HEAD | 23. TAKE UP GEAR BLK |
| 9. PRE-AMP PCB | 24. SENSOR LED |
| 10. POWER TRANSFORMER (T1) | 25. TAKE UP GEAR BLK |
| 11. TRANS PCB | 26. CAPSTAN SHAFT |
| 12. HEAD DRUM BLK | 27. PINCH ROLLER |
| 13. IMPEDANCE ROLLER | 28. OPERATION (A) PCB |
| 14. FULL ERASE HEAD | 29. OPERATION (B) PCB |
| 15. SUPPLY TAPE GUIDE | |

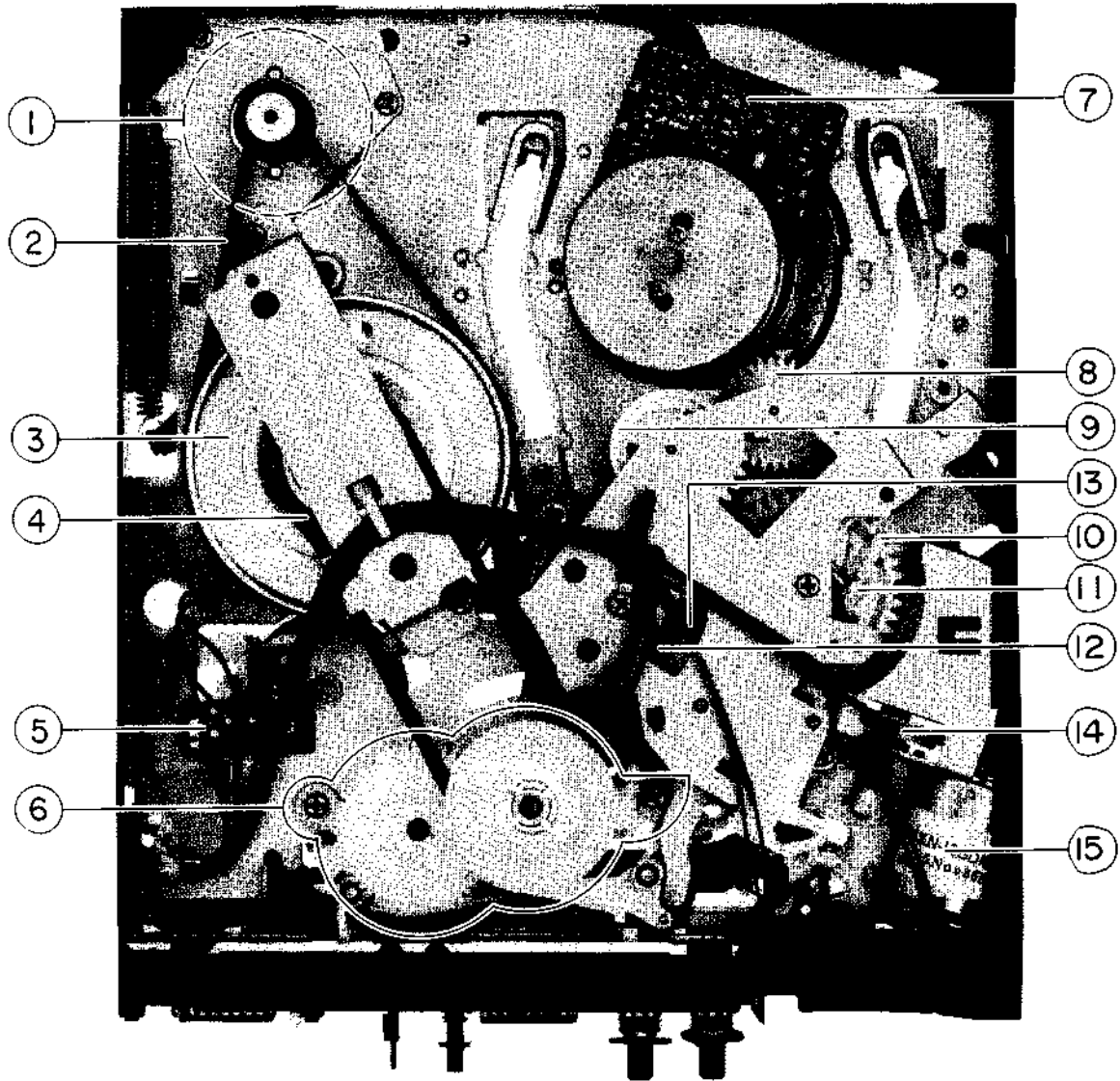


Fig. 6-2 Bottom View

- | | |
|------------------------|-------------------------|
| 1. CAPSTAN MOTOR | 9. TAKE-UP LOADING GEAR |
| 2. CAPSTAN BELT | 10. EJECT CAM GEAR |
| 3. CAPSTAN FLYWHEEL | 11. EJECT SWITCH |
| 4. IDLER BELT | 12. ROTARY ENCORDER |
| 5. REEL SENSOR PCB | 13. MAIN GEAR CAM |
| 6. TAKE-UP GEAR BLOCK | 14. SYNCHRO BELT |
| 7. DRUM MOTOR BLOCK | 15. LOADING MOTOR |
| 8. SUPPLY LOADING GEAR | |

7-1. BACK TENSION ADJUSTMENT

- 1) Remove the EJECTOR BLK, and disconnect P406 from MAIN PCB.
- 2) Depress the POWER button on the Front Panel.
- 3) Short pin ③ (C. SW. B) and pin ⑤ (GND) of P406 with a tweezer or jamper wire as shown in Fig. 6-1 to maintain the tape loaded made without Ejector BLK.

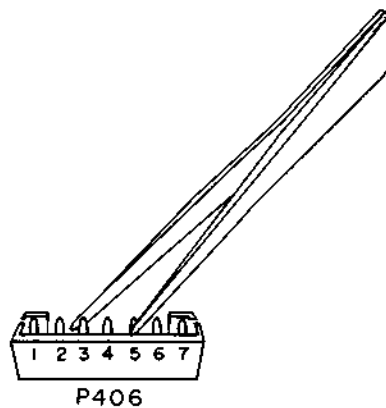


Fig. 7-1 Connector P406

7-1. REGLAGE DE LA TENSION LIBRE

- 1) Enlevez le bloc d'éjection et d'éconnectez P406 du circuits imprimés MAIN.
- 2) Appuyez sur le comutateur de ALIMENT sur le panneau frontal.
- 3) Court-circuiter la fixhe ③ (C. SW-B) et la fiche ⑤ (GND) du P406 à pincette ou à fil-jarretière, selon les indications dans la Figure 6-1, destinées à maintenir la bande dans le mode chargé sans le bloc éjecteur.

- 4) Set the Back Tension jig (AT-751181) on the Reel tables and put some weight on the Back Tension jig as a stabilizer.
- 5) Press the PLAY button, then check and adjust back tension as 30 ~ 35 g-cm by the TENSION HOLDER position.

- 4) Régler le mécanisme de contre-tension (AT-751181) sur les tables de bobine et ajouter du poids au mécanisme de contre-tension pour le stabiliser.
- 5) Appuyez la touche lecture (PLAY), vérifiez et réglez la tension libre comme 30 ~ 35 g-cm par la position du support de tension. (TENSION HOLDER).

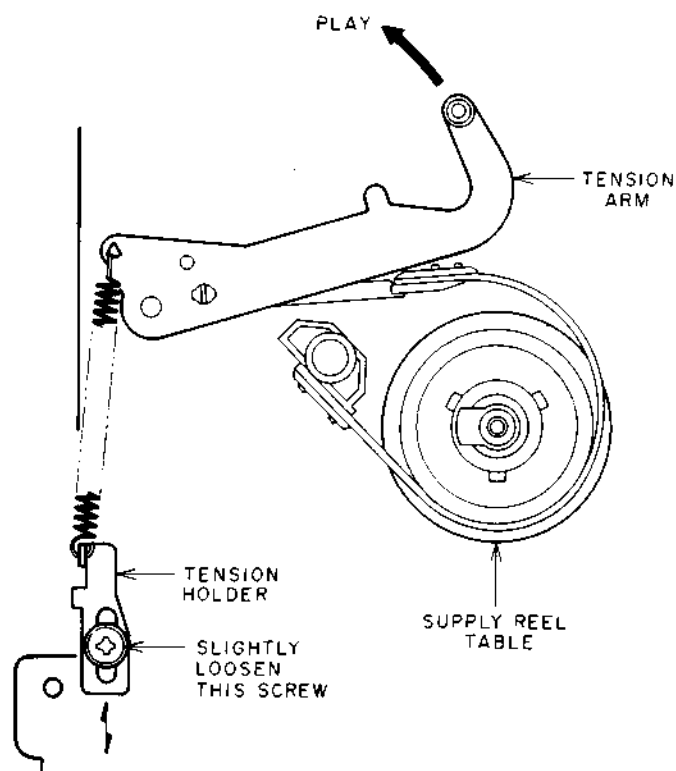


Fig. 7-2

7-2. LOADING LEADER HEIGHT ADJUSTMENT

- 1) Slightly loosen the set screw at the lower part of the LOADING LEADER so that the LOADING LEADER can be adjusted with reasonable tightness. Adjust the coarse height of the LOADING LEADER from the base mount as 0.6 to 0.8 mm.
- 2) Set the reference tape TF-530RFS (AT-751775) and depress the PLAY button.
- 3) Connect an oscilloscope to TP1 RF ENVELOPE Test terminal on the MAIN P.C BOARD and turn the LOADING LEADER height adjustment screw head to obtain the flat envelope as Fig. 7-5 idela envelope.

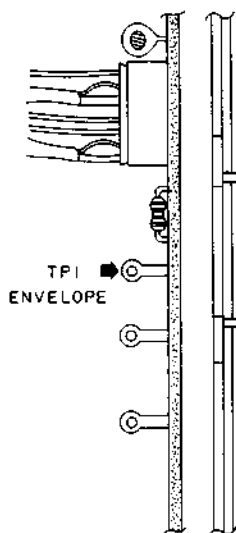


Fig. 7-3

7-2. REGLAGE DE LA HAUTEUR DU GUIDE DE CHARGEMENT

- 1) Relâchez légèrement, la vis sur la partie la plus basse du guide de chargement, de sorte que le guide de chargement puisse être ajusté avec une dureté raisonnable. Ajustez la hauteur approximative du guide de chargement à partir de la base de montage comme 0.6 à 0.8 mm.
- 2) Placez la cassette de référence TF-530RFS (AT-751775) et appuyez la touche lecture (PLAY).
- 3) Connectez un oscilloscope à borne de test TP1 Enveloppe RF sur le circuits imprimés MAIN, tournez la vis d'ajustement de hauteur du guide de chargement afin d'obtenir une enveloppe plate et idéale comme dans Fig. 7-5.

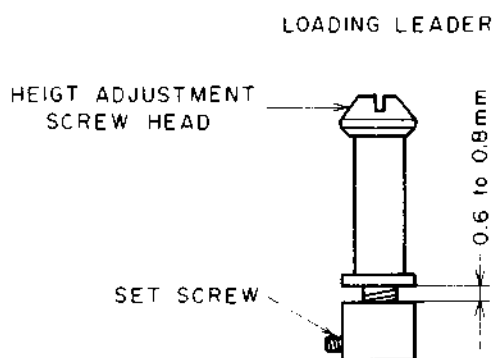


Fig. 7-4

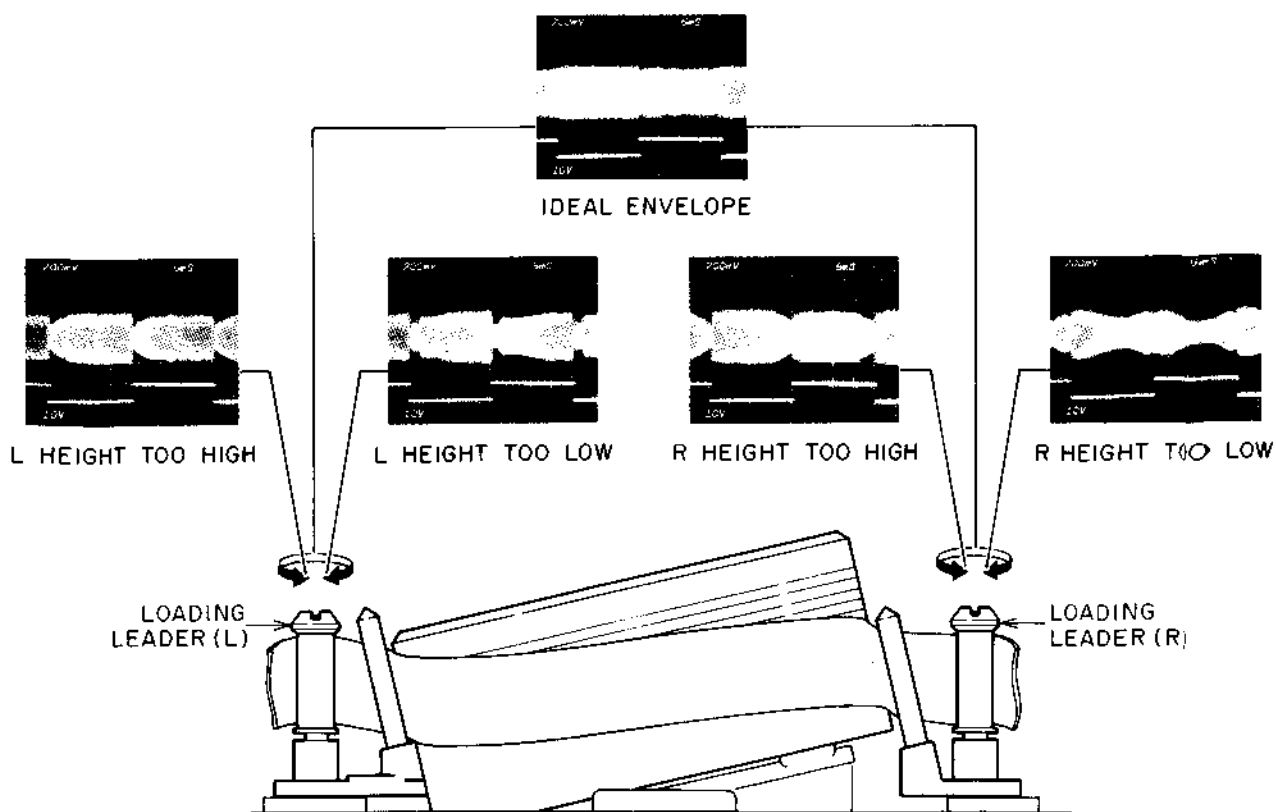


Fig. 7-5

7-3. TAPE CURL AT TAKE-UP TAPE GUIDE ADJUSTMENT

Turn the screw (a) on the A/C HEAD BLK so that the down edge of the tape touches the TAKE-UP TAPE GUIDE lower part without any curl or waving.

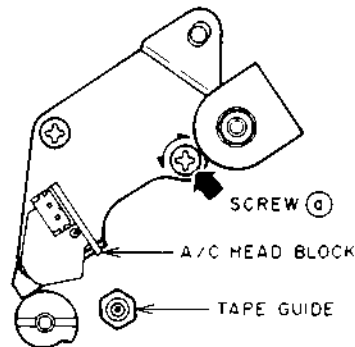


Fig. 7-6

7-3. REGLAGE ONDULATION DE LA BANDE SUR LE GUIDE RELEVER

Tournez la vis (a) sur le bloc de la tête A/C de façon que le bord inférieur de la bande touche la partie la plus basse du guide Relever sans ondulation.

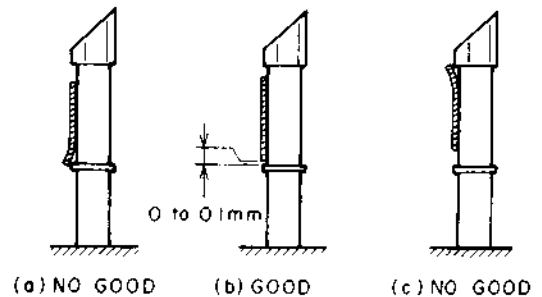


Fig. 7-7

7-4. AUDIO HEAD AZIMUTH ADJUSTMENT

1) Turn the NUT (a) for coarse A/C HEAD BLOCK height adjustment as in Fig. 7-8, 9.

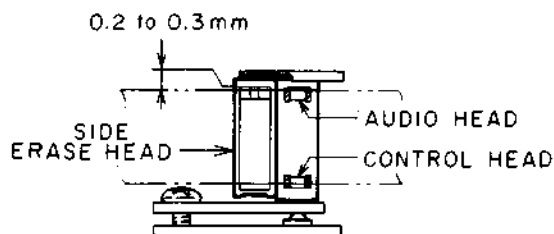


Fig. 7-8

7-4. REGLAGE DE L'AZIMUTAGE DE LA TETE AUDIO

1) Tournez l'écrou (a) pour un réglage approximatif comme dans la Fig. 7-8, 9.

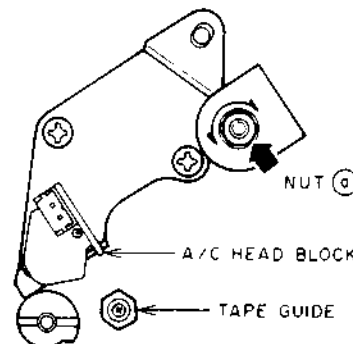


Fig. 7-9

- 2) Connect an oscilloscope or AC voltmeter to the AUDIO LINE OUT.
- 3) Set the reference tape TF-530RFS (AT-751775) and depress the PLAY button.
- 4) Turn the screw (b) to obtain the maximum audio signal output.

- 2) Connectez un oscilloscope ou un voltmètre CA à la ligne de sortie AUDIO (AUDIO LINE OUT).
- 3) Placez la cassette de référence TF-530RFS (AT-751775) et appuyez la touche lecture (PLAY).
- 4) Tournez la vis (b) pour obtenir le signal de sortie audio maximum.

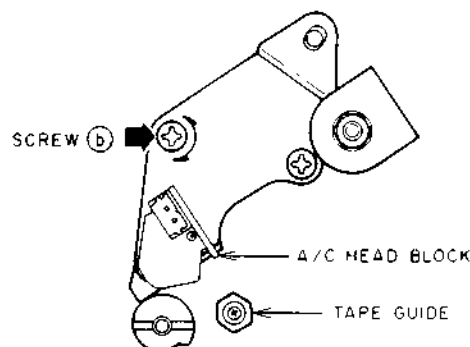


Fig. 7-10

7-5. RF ENVELOPE ADJUSTMENT

- 1) Set the reference tape TF-530RFS (AT-751775) and depress the PLAY button.
- 2) Slightly turn the LOADING LEADER HEIGHT ADJUSTMENT SCREW HEAD (L) (R) to obtain the IDEAL ENVELOPE as shown in Fig. 7-5.

7-6. TAPE CURL AT SUPPLY TAPE GUIDE ADJUSTMENT

- 1) Check the tape curl at Supply Tape Guide slightly turn the NUT Ⓐ if the tape curl exists.

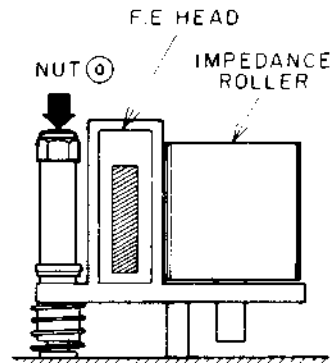


Fig. 7-11

7-7. AUDIO HEAD HEIGHT ADJUSTMENT

- 1) Connect an oscilloscope or AC Voltmeter to the LINE AUDIO OUT.
- 2) Set the reference tape TF-530RFS (AT-751775) and depress the PLAY button.
- 3) Slightly turn the NUT Ⓐ shown in Fig. 7-9 to obtain the maximum audio output.

7-8. CONTROL HEAD POSITION ADJUSTMENT

- 1) Connect an oscilloscope to TP1 RF ENVELOPE Test terminal on the MAIN Board.
- 2) Set the reference tape TF-530RFS (AT-751775) and depress the PLAY button.
- 3) Set the Tracking Control Volume to center click position.
- 4) Adjust Mechanical Tracking Adjustment Screw Ⓐ to obtain the maximum RF ENVELOPE.

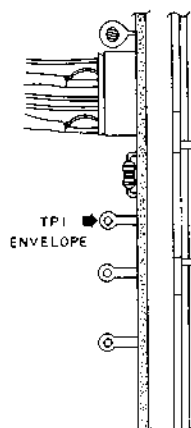


Fig. 7-13

7-5. REGLAGE ENVELOPPE RF

- 1) Placez la cassette de référence TF-530RFS (AT-751775) et appuyez la touche lecture (PLAY).
- 2) Tournez légèrement la vis de réglage de la hauteur du guide de chargement (LOADING LEADER HEIGHT ADJUSTMENT SCREW HEAD) (L) (gauche) et (R) (droite) pour obtenir l'enveloppe idéale (IDEAL ENVELOPE) comme montré dans Fig. 7-5.

7-6. REGLAGE ONDULATION DE LA BANDE SUR LE GUIDE APPROVISIONNEMENT

Vérifiez si il y a ondulation de la bande au niveau du guide approvisionnement (SUPPLY TAPE GUIDE), tournez légèrement la écrou Ⓐ si il y a ondulation de la bande.

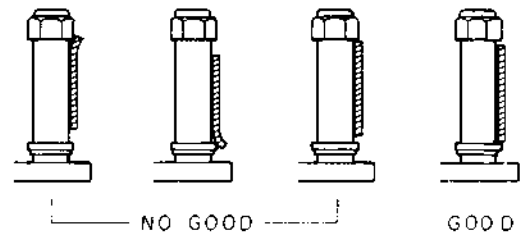


Fig. 7-12

7-7. REGLAGE DE LA HAUTEUR DE LA TETE AUDIO (AUDIO HEAD HEIGHT)

- 1) Connectez un oscilloscope ou un voltmètre CA à la sortie audio (AUDIO OUT).
- 2) Placez la cassette de référence T-530RFS (AT-751775) et appuyez la touche lecture (PLAY).
- 3) Tournez légèrement l'écrou Ⓐ pour obtenir la sortie audio maximum, comme comtré dans Fig. 7-9.

7-8. REGLAGE DE POSITION DE LA TETE DE CONTROLE

- 1) Connectez un oscilloscope au borne de test TP1 Enveloppe RF sur le circuits imprimés MAIN.
- 2) Placez la cassette de référence TF-530RFS (AT-751775) et appuyez la touche lecture (PLAY).
- 3) Réglez la commande d'alignement sur la position centrale à dé clic.
- 4) Tournez l'alignement mécanique vis Ⓐ pour obtenir l'enveloppe RF maximum.

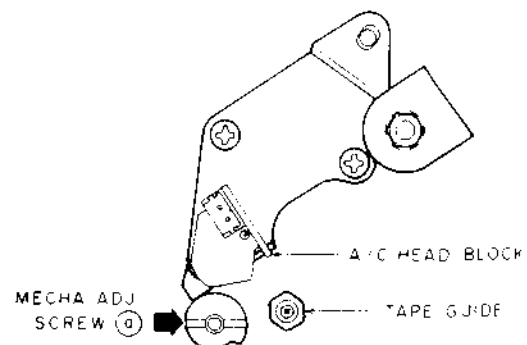


Fig. 7-14

7-9. CUE REVIEW ADJUSTMENT

- 1) Set a E-180 tape, press the PLAY and the F.FWD button (CUE mode).
- 2) Turn the CUE/REVIEW GUIDE height adjustment Nut ③ so that the wrinkle between the PINCH ROLLER and the CUE/REVIEW GUIDE are not existed.
- 3) Depress the REV button (REVIEW mode) confirm the curl at the tape down edge is not existed at the TAPE GUIDE as shown in Fig. 7-7.
(Fig. 7-7 (c) is not acceptable, but Fig. 7-7 (b) is acceptable).

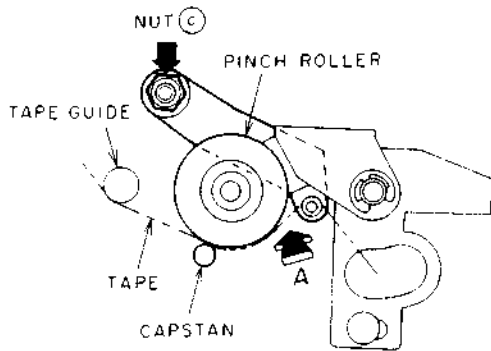


Fig. 7-15

After the adjustments, tighten the LOADING LEADER set screw.

7-9. REGLAGE DU DEFILEMENT DE LA BANDE EN MODE RECHERCHE RAPIDE (CUE/REVIEW)

- 1) Placez une cassette E-180, appuyez les touches lecture (PLAY) et avance rapide (F.FWD) (mode CUE).
- 2) Tournez l'écrou ③ de réglage de hauteur du guide CUE/REVIEW de façon que le plissement entre le galet presseur et le guide CUE/REVIEW soit inexistant.
- 3) Appuyez la touche rembobinage (mode REVIEW), vérifiez qu'il n'y a pas d'ondulation sur le bord inférieur de la bande au niveau du guide TU, comme montré dans Fig. 7-7.
(Fig. 7-7 (c) n'est pas acceptable, mais la Fig. 7-7 (b) est acceptable.)

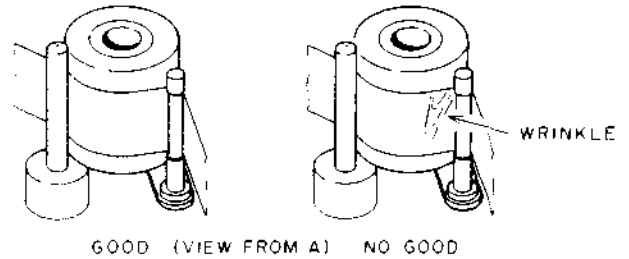


Fig. 7-16

Après les réglages décrits ci-dessus, resserrez la vis de réglage du guide de chargement.

8-1. REPLACEMENT PROCEDURE

- 1) Remove the Drum Earth Brush.
- 2) Unsolder the four wires from the Rotary Trans, BLUE and BROWN for CH1, BLUE and RED for CH2.
- 3) Remove the Upper Drum Fixing Screw.
- 4) Install the Upper Drum. (Head Drum)
- 5) Tighten the Upper Drum Fixing Screws.
- 6) Resolder the four wires from the Rotary trans.

8-1. PROCEDURE DE REMPLACEMENT

- 1) Enlevez le balais de mise à la terre (EARTH BRUSH).
- 2) Dessoudez les quatre câbles du transformateur rotary, BLEU MARRON pour canal 1 (CH1) et BLEU ROUGE pour canal 2 (CH2).
- 3) Enlevez les vis de fixation du tambour supérieur.
- 4) Installez le tambour supérieur (Tête tambour).
- 5) Resserrez les vis de fixation du tambour supérieur.
- 6) Ressoûdez les quatre câbles du transformateur rotary.

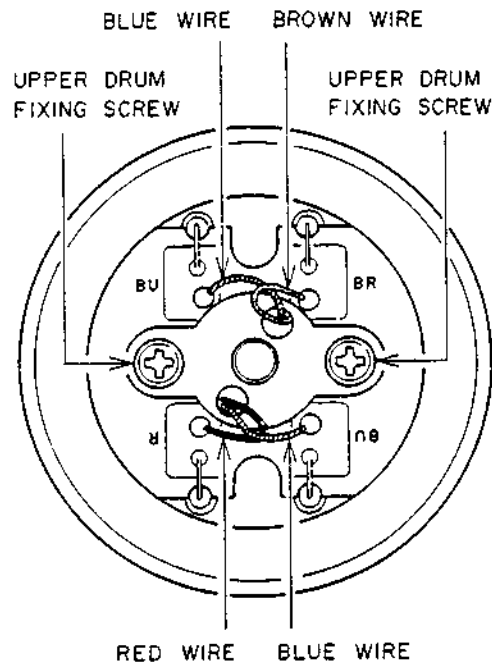


Fig. 8-1

NOTE: Height precision is required for the proper performance, and the head tips are fragile, so the following points should be noted when replacing the upper drum block.

- (a) Do not loosen the set screw on the collar pre-load.
- (b) Before fixing, clean both surfaces where the upper drum and the rotary transformer part meet, with pure alcohol.
- (c) When installation of upper drum, if it does not go on to the shaft easily, clean the hole in the upper drum with pure alcohol and put a little oil on the shaft.
- (d) Make sure that the upper drum fixing screw holes on the rotary transformer part and the upper drum fixing screw penetration holes match exactly before inserting the fixing screws.
- (c) Tighten the two upper drum fixing screws alternately and gradually. Tighten them at 6 kg-cm torque.

REMARQUE:

La précision au niveau de la hauteur est requise pour obtenir de correctes performance, et les extrémités têtes sont fragiles, de ce fait les points suivants doivent être pris en considération lorsque vous remplacez le bloc tambour supérieur.

- (a) Ne desserrez pas l'ensemble de vis situé sur le collier de charge préalable.
- (b) Avant toute fixation, nettoyez avec de l'alcool pur les surfaces où le tambour supérieur et le transformateur rotary se joignent.
- (c) Lors de l'installation du tambour supérieur, si il ne s'adapte pas aisément sur l'arbre, nettoyez l'orifice du tambour supérieur avec de l'alcool pur et huilez légèrement l'arbre.
- (d) Assurez vous que les trous des vis de fixation du tambour supérieur sur le transformateur rotary et que les trous des vis de fixation du tambour supérieur s'adaptent exactement avant d'insérer les vis de fixation.
- (e) Resserrez les deux vis de fixation du tambour supérieur alternativement et graduellement. Resserrez les en couple de 6 kg-cm.

8-2. AFTER REPLACEMENT

After replacement, the following adjustments and confirmations are necessary for the proper performance.

- 1) Tracking preset adjustment. (Servo adjustment Step 2)
- 2) PB switching point adjustment. (Servo adjustment Step 3)
- 3) REC current adjustment. (Video adjustment Step 1)

8-2. APRES REMPLACEMENT

Après remplacement les réglages et confirmations suivants sont nécessaires pour obtenir de correctes performances.

- 1) Réglage de pré-réglage d'alignement (Réglage SERVO étape 2).
- 2) Réglage du point de commutation de la reproduction (Réglage SERVO étape 3).
- 3) Réglage courant d'enregistrement (Réglage VIDEO étape 1).

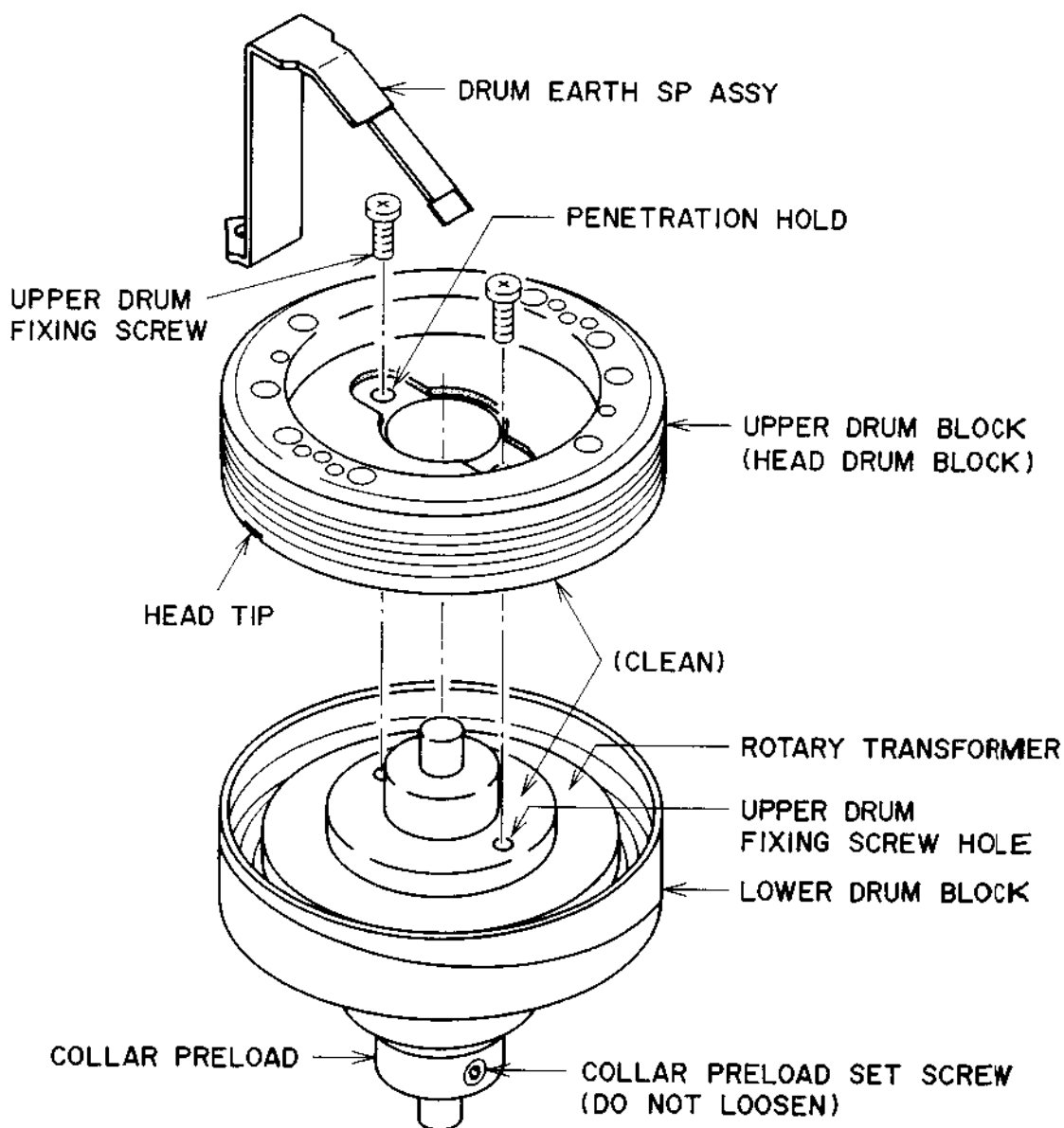


Fig.8-2

IX. HOW TO MOUNT THE ROTARY PLATE

When mounting the rotary plate on the drum motor, be sure to align the mark (Small round hole) on the rotary plate (a) with the collar preload set screw (d) on the collar preload (c) as illustrated above.

NOTE: Do not attempt to remove the collar preload (c) on the head assy. If removed, a special jig is needed for reinstallation, which almost always requires replacement of the drum assy.

IX. COMMENT MONTER LA PLAQUE ROTATIVE

Lors de la mise en place de la plaque rotative sur le moteur à tambour, assurez-vous d'aligner le repère (petit orifice rond) situé sur la plaque rotative (a) avec la vis de réglage (d) du collier de préchargement située sur le collier de préchargement (c) comme il est indiqué ci-dessous.

REMARQUE: N'essayez pas de démonter le collier de préchargement (c) de l'assemblage de la tête. Si ce collier est enlevé, un gabarit spécial est nécessaire pour remettre le collier de préchargement en place, ce qui nécessite la plupart du temps le remplacement de l'assemblage du tambour.

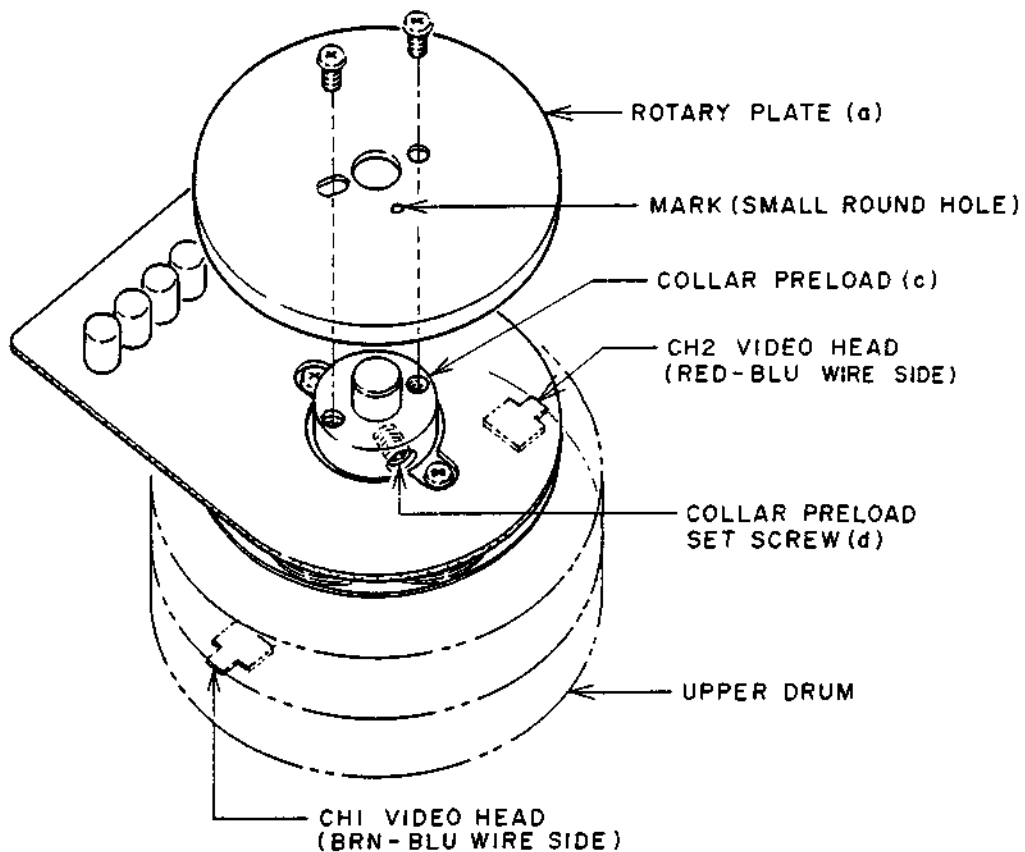


Fig. 9-1

X. HOW TO ASSEMBLE LOADING MECHANISM

X. COMMENT ASSEMBLER LE MECANISME DE CHARGEMENT

- 1) With the unit unloaded, attach Gear Loading (S) BLK and Gear Loading (T) BLK to Mecha chassis so that align the mark.

- 1) L'unité étant en mode de déchargement, fixez le bloc d'engrenage de chargement (S) et le bloc d'engrenage de chargement (T) sur le chassis mécanique de façon à ce que les repères soient alignés.

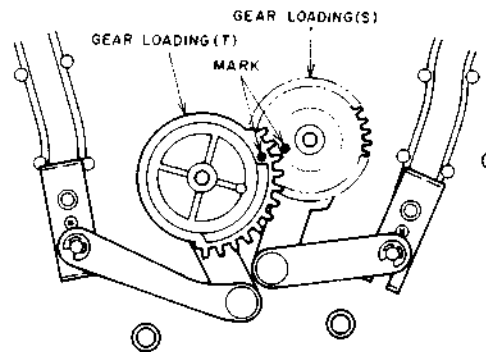


Fig. 10-1

- 2) Attach Gear Cam Eject to Mecha chassis so that align the marks.

- 2) Fixez la came d'engrenage d'éjection sur le chassis mécanique de façon à ce que les repères soient alignés.

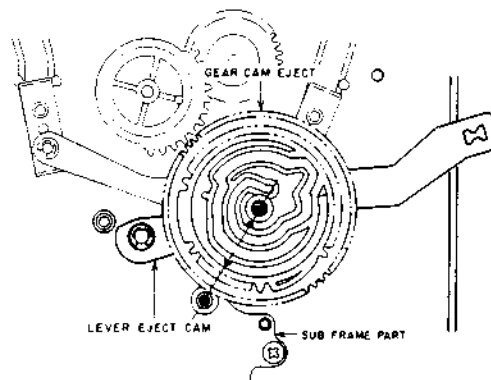


Fig. 10-2

- 3) Attach Gear Cam Main to Mecha chassis so that Pin (A) of Lever P Cam and Pin (B) of Lever Cam Slide mate oval hole of Gear Cam Main.

- 3) Fixez la came d'engrenage principale au chassis mécanique de façon à ce que la broche (A) de la came P du levier et la broche (B) de la came de glissement du levier soient situées dans l'orifice ovale de la came d'engrenage principale.

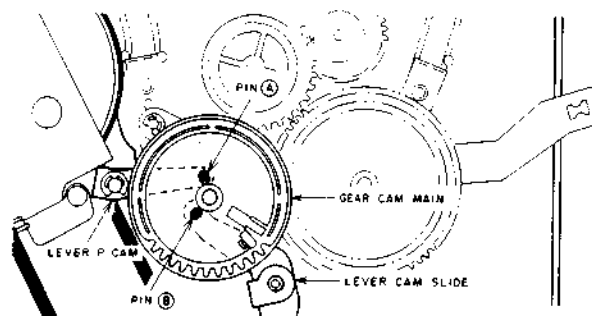


Fig. 10-3

- 4) Attach Lever Cam Tension to Mecha chassis so that Pin (A) goes into valley of Gear Cam Eject.
- 5) Attach Lever Cam F/R to Mecha chassis so that Pin (B) goes into valley of Gear Cam Eject, and Pin (C) of Plate F/R Slide (2) Part into hole of lever Cam F/R.

- 4) Fixez la came de tension du levier sur le chassis mécanique de façon à ce que la broche (A) soit placée dans la cornière de la came d'engrenage de l'éjection.
- 5) Fixez la came F/R du levier sur le chassis mécanique de façon à ce que la broche (B) soit placée dans la cornière de la came d'engrenage de l'éjection et que la broche (C) de la pièce (2) de glissement de la plaque F/R soit placée dans l'orifice de la came F/R du levier.

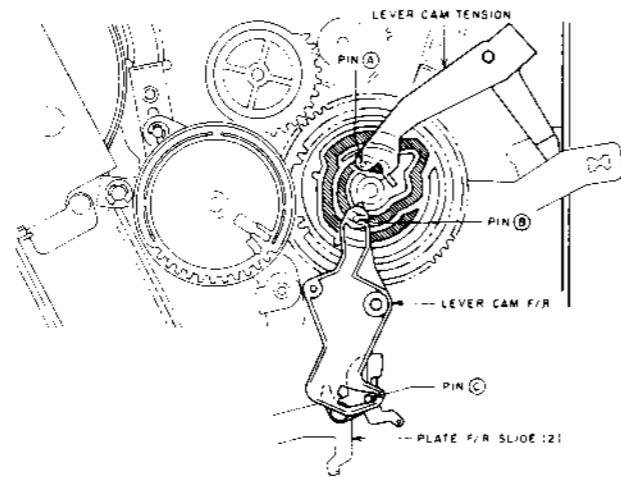


Fig. 10-4

- 6) Attach Arm Set Free onto Lever Cam Slide.

- 6) Fixez le dispositif de déverrouillage du bras à la came de glissement du levier.

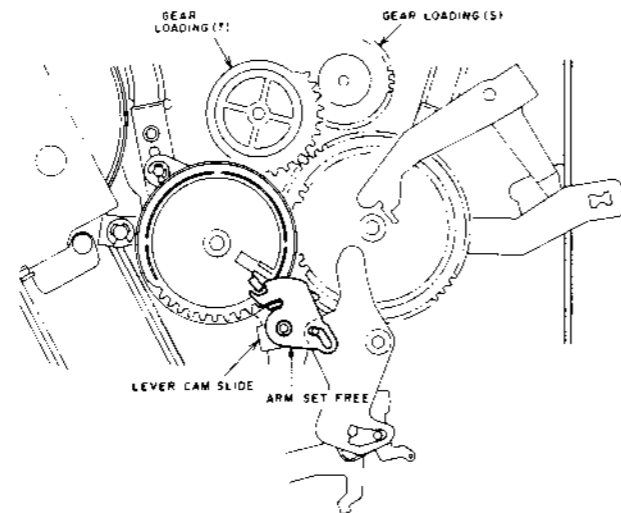


Fig. 10-5

- 7) Attach Mode SW BLK to Mecha chassis so that the latch of Rotary Encoder goes into slit (A) of Gear Cam Main and tighten with screw (B).

- 7) Fixez le bloc de commutation de mode (SW BLK) sur le chassis mécanique de façon à ce que le verrou de l'encodeur rotatif soit situé dans l'encoche (A) de la came d'engrenage principale et fixez l'ensemble avec la vis (B).

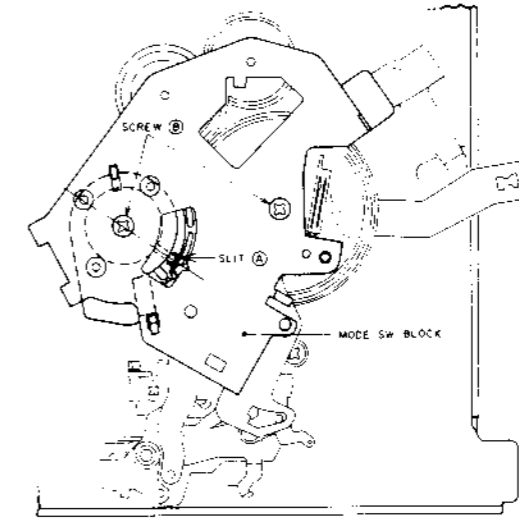


Fig. 10-6

- 8) Mount Loading Motor BLK and tighten with screw (A).

- 8) Montez le bloc du moteur de chargement et fixez le avec la vis (A).

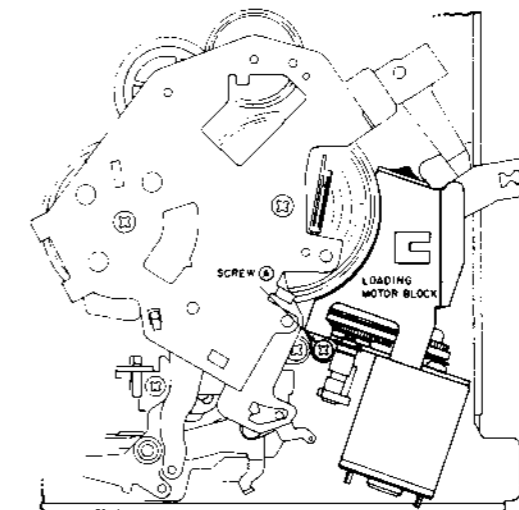


Fig. 10-7

XI. ELECTRICAL ADJUSTMENT

11-1. MAIN PCB ADJUSTMENTS

Precautionary items prior to adjustments.

1. The color bar generator output should be 1.0 Vp-p.
2. Video output terminal should be terminated with 75 ohms (dummy or load).

Required following Test tapes.

Test Tape	Part No.
TF-530RFS	AT-751775
TF-527BL	AT-711880
TF-512CB	AT-750779

STEP	ADJUSTMENT ITEM
1.	MODE and INPUT SIGNAL/TEST TAPE
2.	TEST POINT and ADJ. part
3.	RESULT & REMARKS

ADJ. part

Test point

AUDIO ADJUSTMENT

3 AUDIO AZIMUTH

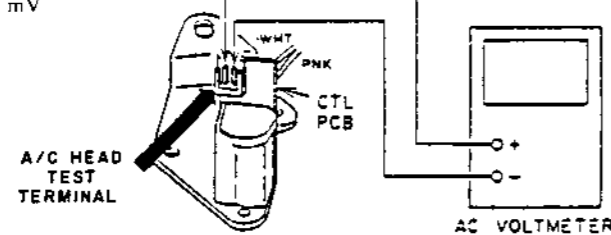
1. "PB" Test tape TF-530RFS.
2. AUDIO OUT.
3. Confirm $-6 \sim -14$ dBm. (TF-508RF: $-5 \sim -11$ dBm)

1 AUDIO PB LEVEL

1. "PB" Test tape TF-527BL.
2. Audio out & VR501.
3. -3.0 ± 0.5 dBm (TF-513L: -9.0 ± 0.5 dBm)

2 REC CURRENT

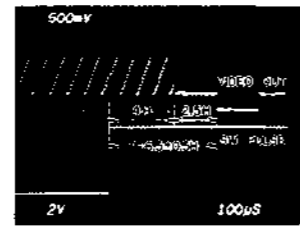
1. "REC" (1 kHz, -8 dBm)
2. Test terminal on the A/C Head & VR502.
3. 2.9 ± 0.1 mV



SERVO ADJUSTMENT

3 PB SWITCHING POINT

1. "PB" Test tape TF-530RFS.
2. TP-Video out, P204 pin 1 (SW.P) for trigger signal & VR201.
3. Adjust "T" to 6.5 ± 0.5 H



1 IDL 5V

1. "E-E" (stop mode)
2. TP4 (IDL 5V) & VR301
3. 5.1 ± 0.05 V

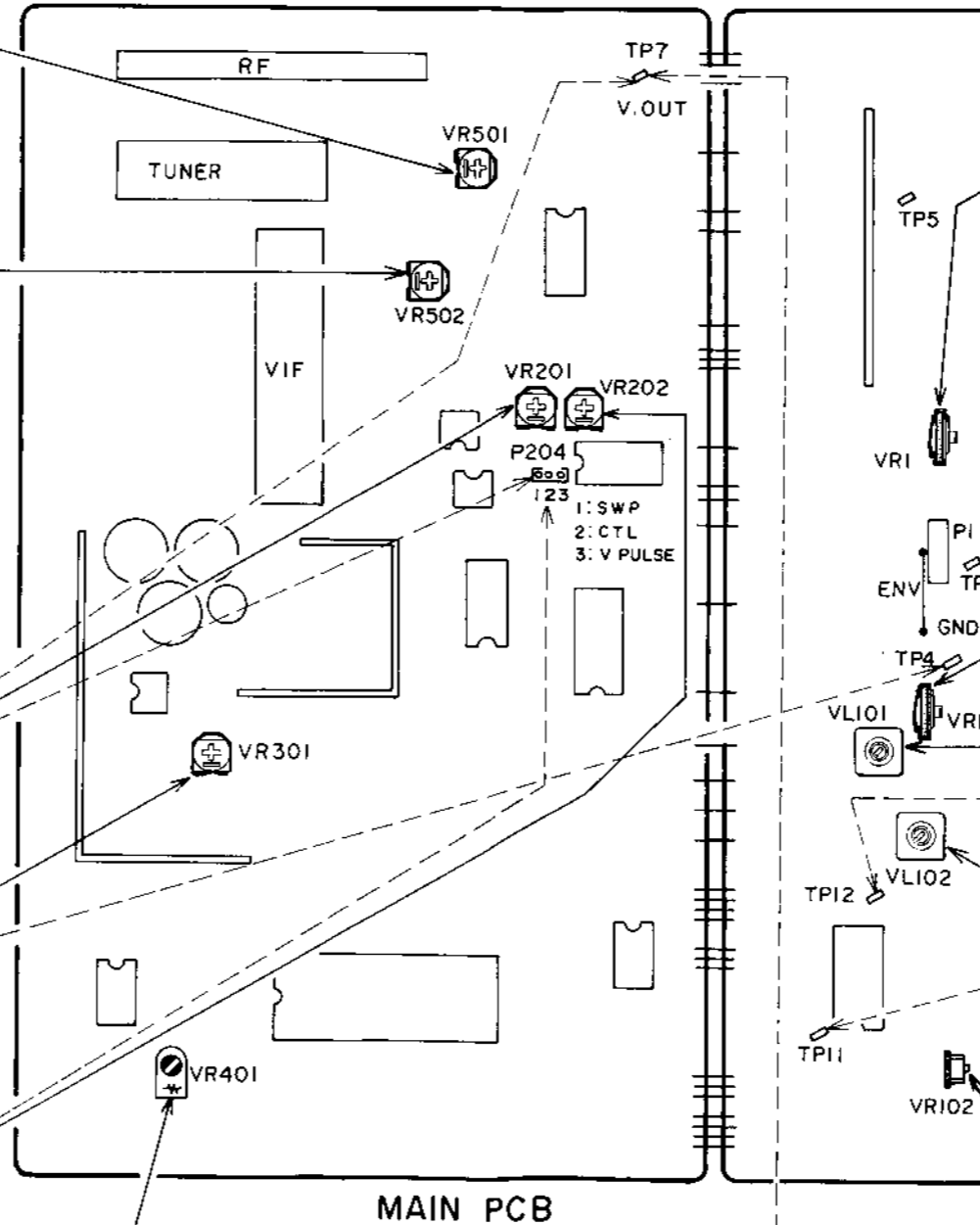
2 TRACKING PRESET

1. "PB" Test tape TF-530RFS.
2. Test terminal P204 pin 2 (CTL), pin 3 (V-SYNC) & VR202.
3. Set the TRACKING Control to center click position.
 - Adjust VR202 so that the phase at raising part of CTL pulse and V-SYNC pulse are lined up.



4 VERTICAL STABILITY

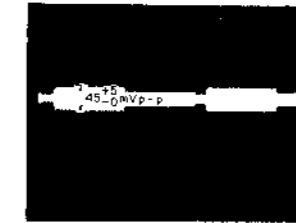
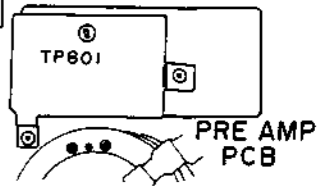
1. "REC" TV program and PB/PAUSE
2. TV screen & VR401
3. Minimum vibration of still picture.



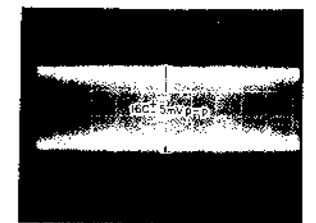
VIDEO ADJUSTMENT

4 REC CURRENT

1. "REC" SECAM color bar signal.
2. TP801 on the PRE-AMP PCB & VR101 (C), VR1 (Y).
3. Turn VR1 (Y) fully clockwise.



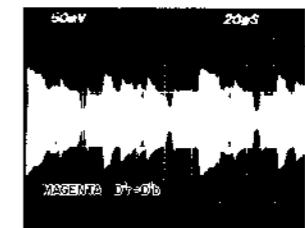
- Adjust VR101 so that Chroma REC current level is 45 ± 5 mVp-p.



- Adjust VR1 so that Y REC current level is 160 ± 5 mVp-p.

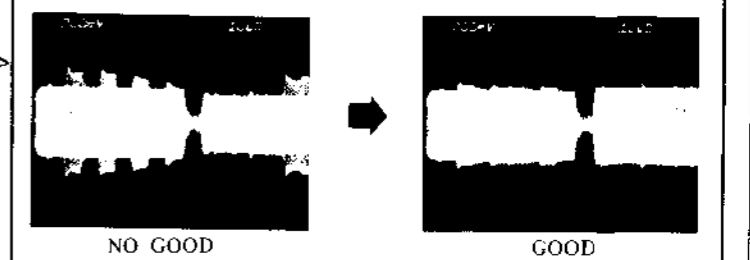
2 EQUALIZER LEVEL

1. "REC" SECAM color bar signal.
2. TP12 & VL101
3. Adjust VL101 so that D'r and D'b becomes same level as shown.



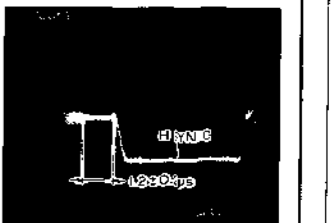
3 BELL FILTER

1. "REC" SECAM color bar signal.
2. TP11 & VL102
3. Adjust VL102 so that waveform become flat as shown.



1 CHROMA NOISE GATE

1. "PB" Test tape TF-512CB.
2. TP7 Video out & VR102
3. Adjust VR102 so that noise gate pulse position is 1.2 ± 0.2 µs from H.SYNC signal as shown.



XI. REGLAGES ELECTRIQUES

11-1. REGLAGE DE CIRCUITS IMPRIMÉS MAIN

Précautions à prendre avant d'effectuer les réglages.

1. La sortie du générateur de barres couleurs doit être de 1.0 Vp-p.
2. La borne de sortie vidéo être bouclée à 75 ohms (fictif ou charge réelle)

Les sondes d'essai suivantes sont requises.

Bande d'Essai	Nombre Partie
TF-512CB	AT-750779
TF-527BL	AT-711880
TF-530RFS	AT-751775

DIS-POSITION	POINT DE RÉGLAGE
1. Mode et signal d'entrée ou bande d'essai.	à pièces de réglage à point d'essai
2. Point d'essai et pièces de réglage.	
3. Résultats et Remarques.	

REGLAGE AUDIO

3 AZIMUTAGE TÊTE

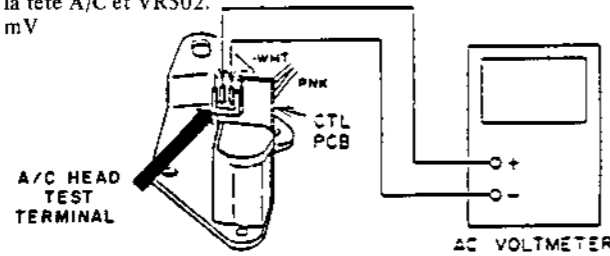
1. "LECTURE"/TF-530RFS Bande d'essai.
2. Sortie Audio
3. Confirm $-6 \sim -14$ dBm

1 NIVEAU DE LECTURE

1. "LECTURE"/TF-527BL Bande d'essai.
2. Sortie Audio et VR501.
3. -3.0 ± 0.5 dBm.

2 COURANT DE PRÉMAGNETISATION

1. "ENRG." (Entree audio 1 kHz, -8 dBm).
2. Borne de la tête A/C et VR502.
3. 2.9 ± 0.1 mV



REGLAGE D'ASSERVISSEMENT

3 POINT DE COMMUTATION LECTURE

1. "LECTURE"/TF530RFS Bande d'essai.
2. P204 ① (pouls commutation), sortie video et VR201.
3. Réglez "T" avec VR201 sur 6.5 ± 0.5 H.



1 IDL 5V

1. "E-E" (STOP)
2. TP4 (IDL 5V) et VR301
3. 5.1 ± 0.05 V

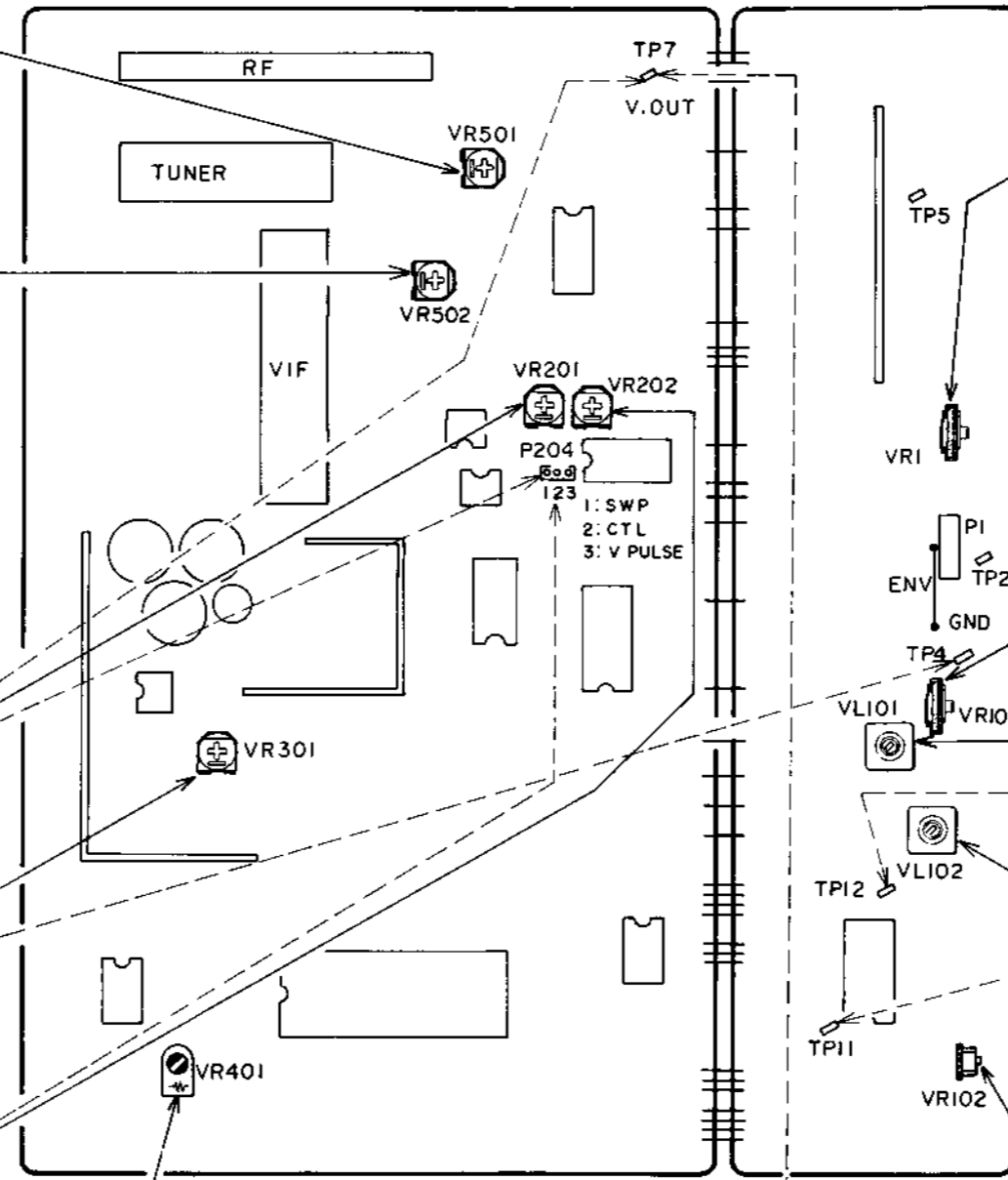
2 PRÉRÉGLAGE DE L'ALIGNEMENT

1. "LECTURE"/TF-530RFS Bande d'essai.
2. P204 ③ (Sync. V), ② (CTL) et VR202.
3. Réglez la commande d'alignement sur la position centrale à déclat. Réglez VR202 de façon à ce que la phase au point d'elevation de l'impulsion de commande et l'impulsion du sync vertical de soient alignées.



4 STABILITÉ VERTICALE

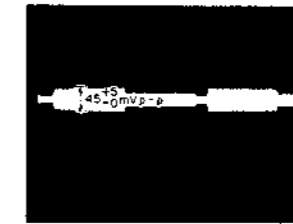
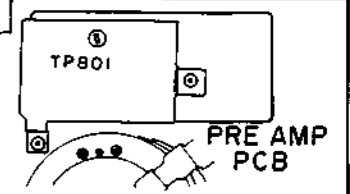
1. "ENRG." (program TV) → LECTURE/PAUSE.
2. Moniteur TV et VR401.
3. Appuyez sur la touché de pause et réglez les barres parasites de l'image fixe avec VR401 jusqu'à ce que les parasites de l'image fixe soient réduits.



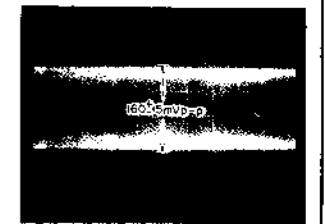
REGLAGE VIDEO

4 COURANT D'ENREGISTREMENT

1. "ENRG." (Barres couleurs SECAM).
2. TP801 (PREAMP) et VR101 (chroma), VR1 (Y).
3. Tournez VR1 complétement dans le sens contraire des aiguilles d'une montre (Y-zéro).



- Réglez VR101 de façon à ce que la forme d'onde d'enregistrement chroma soit de 45 ± 0 mVp-p.



- Réglez VR1 de façon à ce que la forme d'onde du courant d'enregistrement du signal (Y) soit de 160 ± 5 mVp-p.

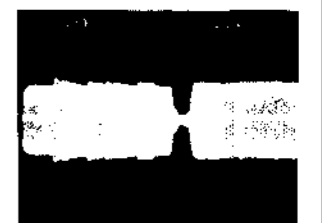
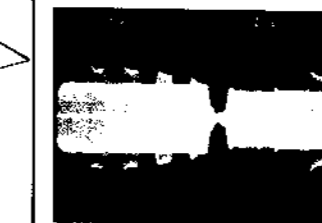
2 EGALISATION DE L'ENREGISTREMENT

1. "ENRG." (Barres couleurs SECAM).
2. TP12 et VL101
3. Réglez VL101 de façon ce que D'R D'b soient au même niveau.



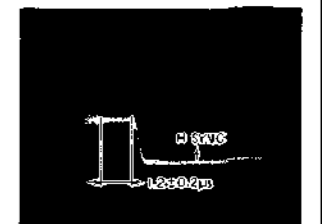
3 FILTRE CLOCHE

1. "ENRG." (Barres couleurs SECAM)
2. TP11 et VL102
3. Réglez VL102 de façon à ce que la forme d'onde soit la plus possible.



1 POSITION D'IMPULSION DE PORTE DU BRUIT

1. "LECTURE"/TF-512CB Bande d'essai.
2. TP7 sortie video et VR102.
3. Réglez VR102 de façon à ce que la position d'impulsion soit de 1.2 ± 0.2 µs par rapport au signal de sync Horizontal.

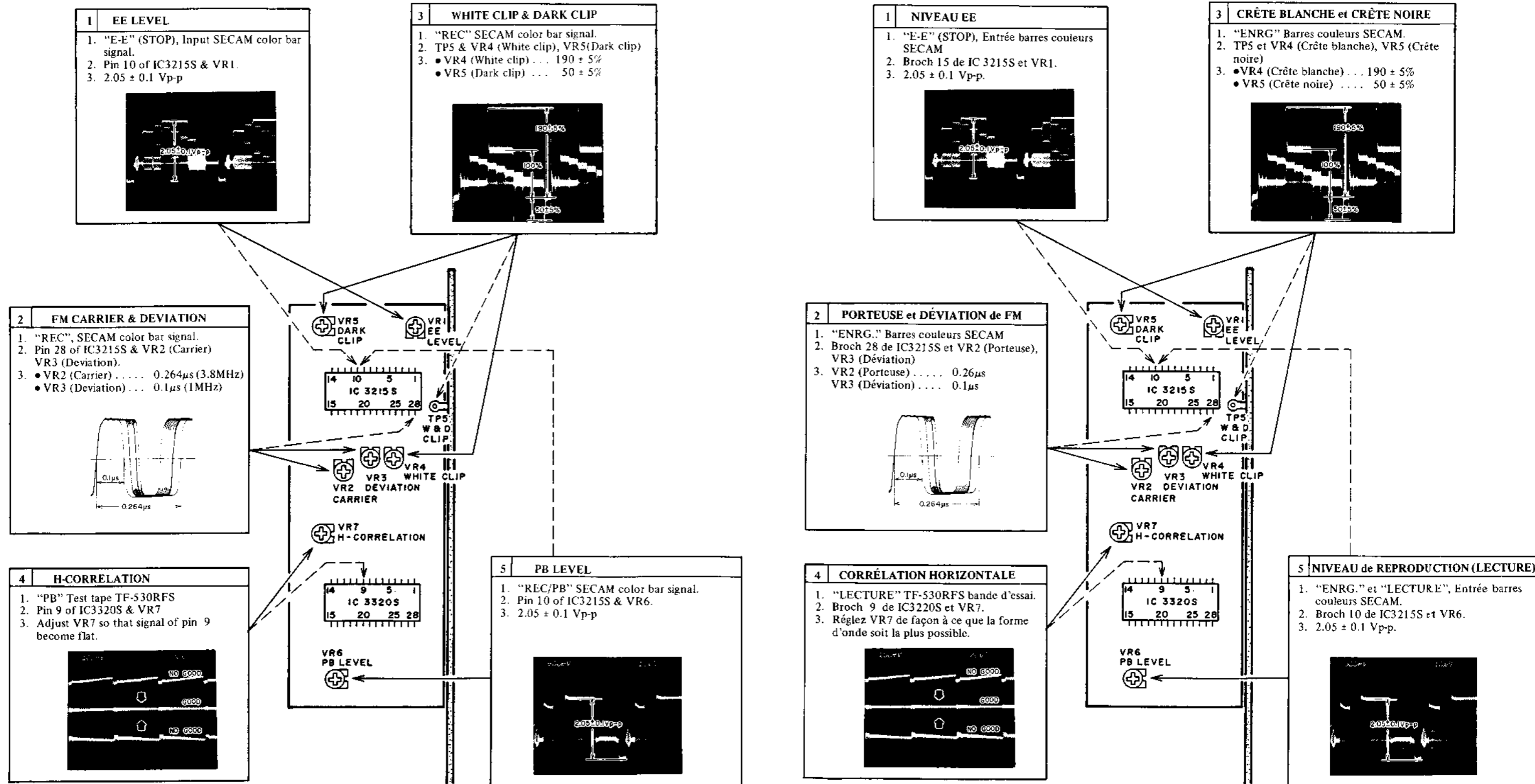


11-2. LUMINANCE SIGNAL PROCESSING IC (HH3210P) ADJUSTMENTS

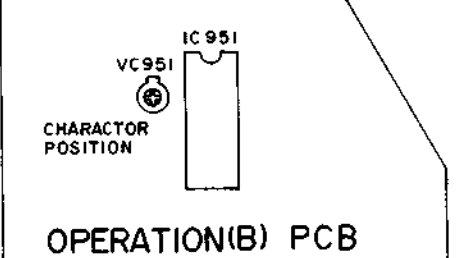
NOTE: These adjustment's are generally unnecessary, except when replacing this IC.

11-2. REGLAGE DU CIRCUIT INTÉGRÉ (HH3210P) DU TRAITEMENT DE SIGNAUX DE LUMINANCE (Y)

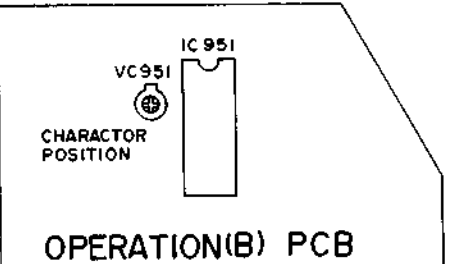
NOTE: En général, ces a ustages ne sont pas nécessaires, à l'exception du remplacement de circuit intégré.



11-3. IMS (DISPLAY) POSITION ADJUSTMENT

<ol style="list-style-type: none">1. "E-E (Stop model)2. TV screen & VC9513. • Depress the PROGRAM button on the REMOTE CONTROL unit. • Adjust VC951 so that characters located center of the TV screen.	 <p>The diagram shows a portion of the OPERATION(B) PCB. It features a vertical rectangular component labeled VC951 with a circular adjustment knob. To its right is a larger component labeled IC 951. Below the VC951 component, the text 'CHARACTOR POSITION' is printed. At the bottom of the diagram, the text 'OPERATION(B) PCB' is printed.</p>
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11-3. RÉGLAGE DE IMS (AFFICHAGE)

<ol style="list-style-type: none">1. "E-E" (STOP)2. Ecran de télévision et VC951.3. • S'appuyer sur le poussoir de programme sur l'ensemble de commande à distance. • Ajuster le VC951 pour que les caractères se trouvent au milieu de l'écran de télévision.	 <p>The diagram shows a portion of the OPERATION(B) PCB. It features a vertical rectangular component labeled VC951 with a circular adjustment knob. To its right is a larger component labeled IC 951. Below the VC951 component, the text 'CHARACTOR POSITION' is printed. At the bottom of the diagram, the text 'OPERATION(B) PCB' is printed.</p>
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XII. PARTS LIST

ATTENTION

1. When placing an order for parts, be sure to list Part No., Model No. and the description of each part. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.
2. Please make sure that Part No. is correct when ordering.
If not, a part different from the one you ordered may be delivered.
3. Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.

a) Mechanism Block

b) PC Board

2. HEAD BASE BLOCK

REF. NO.	PART NO.	DESCRIPTION
2-1x	BH-T2023A320A	HEAD BASE BLOCK
2-2	HP-H2206A010A	HEAD R/P PR4-8FU C
2-3	ZS-477876	PAN20x03STL CMT
2-4	ZS-536488	BID20x08STL CMT
2-5	ZG-402895	SP CS ANGLE ADJUST

SP (Service Parts) Classification

A small "x" indicates that this part is not shown in the Photo or Illustration.

This number corresponds with the individual parts index number in that figure.

This number corresponds with the Figure Number.

6. MAIN PC BOARD

REF. NO.	PART NO.	DESCRIPTION
6-IC1	EI-324536	IC HD14049BP
6-IC2	EI-336801	IC MB8841-564M
6-C1A	EC-338399	C MMY V 223M 250AC [U, E, B, S]
6-C1B	EC-350949	C MMY V 223M 250DC [J]
6-C1C	EC-338397	C MMY V 223M 125AC [C, A]
6-X1	EI-318384	OSC X'TAL NC-18C

Symbols for primary destination

[A]: AAL(U.S.A.) [S]: SAA(Australia)
 [B]: BEAB(England) [U]: U/T(Universal Area)
 [C]: CSA(Canada) [V]: VDE(W. Germany)
 [E]: CEE(Europe) [Y]: Custom Version
 [J]: JPN(Japan)

SP (Service Parts) Classification

These reference symbols correspond with component symbols in the Schematic Diagrams.

The available PC Board Blocks are listed separately.

5. When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List by its Reference No. listed at right of Part No.

WARNING

⚠ (*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

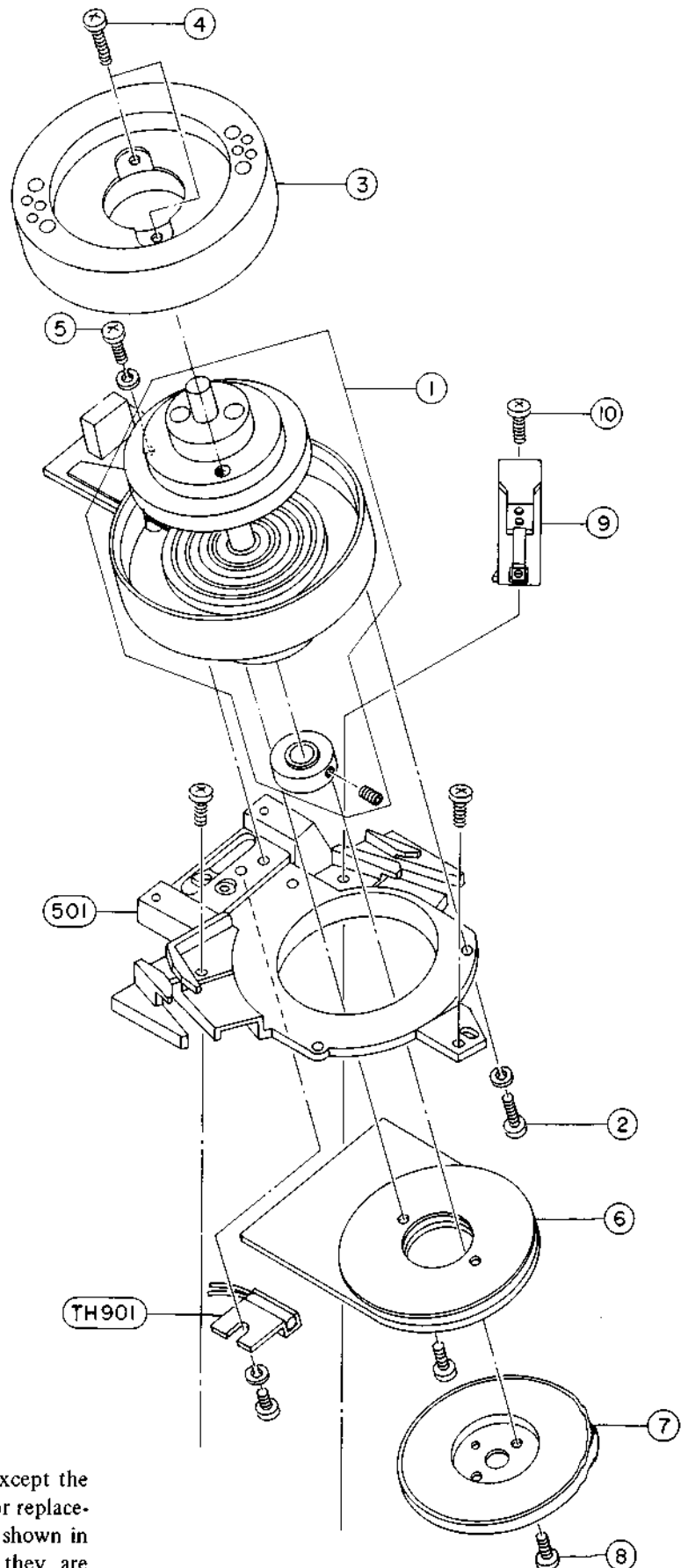
⚠ (*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

1. RECOMMENDED SPARE PARTS

We suggest you to stock the following Recommended Spare Part items listed below since they can cover most of the routine service.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	BF-B360531-B	FLYWHEEL CAPSTAN PART	72	EI-337530	IC UPC574J
2	BL-B360350	ARM TENSION BAND PART	73	EI-714630	IC UPD6102G
3	BM-B361467	LOADING MOTOR PART	74	EI-367407	IC UPD6105C-002
4	BM-361544-B	MOTOR FG KCX-38FS5B	75	EI-347991	OSC CE CSA6.00MS 6MHZ
5	BM-M3224A020A	PC MOTOR BLK SM-240	76	EI-720002	OSC CE CSB455P 455KHZ
6	BR-B365716-B	SUPPLY REEL TABLE PART 2	77	EI-356371	OSC X TAL MS-309 4.194304MHZ
7	BR-B365715-B	TAKE-UP REEL TABLE PART 2	78	EI-309878	OSC X TAL 4.433619MHZ
8	BT-371709	TRANS POW V69S-E0	79	EM-366754	IND LE LB-402MB4
9	BV-V1047A090A	LOADING LEADER(L) BLK VS-112EG	80	*ER-360559	R FUSE H F12 RF50S 1/2W 1R0J
10	BV-V1047A080A	LOADING LEADER(R) BLK VS-112EG	81	*ER-319455	R FUSE H S10 ERD2FC 1/4W 10R0G
11	BV-V1030A210E	LOWER DRUM BLK VS-220U	82	*ER-348272	R FUSE H S10 ERD2FC 1/4W 12R0G
12	BV-371163	RF CONV/BOOSTER MDLC3F553X S	83	*ER-362256	R FUSE H S10 ERQ14LE 1/4W R47K
13	BV-372182	RF CONVERTOR SW*V1070SK	84	*ER-372129	R FUSE H S10 ERQ14LE 1/4W 2R2K
14	BV-V1030A220F	UPPER DRUM BLK VS-303S	85	*ER-362257	R FUSE H S17 ERQ-12H 1/2W R47K
15	BV-V1048A900A	VIF BLK VS-112S	86	*ER-371796	R FUSE H S17 ERQ-12H 1/2W 1R0J
16	BV-V1070A900A	VIF BLK VS-240SK	87	ES-360433	SW LEAF MRX
17	ED-356424	D LED BG5525S GREEN	88	ES-361479	SW LEAF MSW-1594C
18	ED-357540	D LED LN59	89	ES-353622-A	SW PUSH EVQ-WU7001 02-2
19	ED-355607	D LED PR5505S RED	90	ES-366697	SW SLIDE ESD-14137A 1-01-03N
20	ED-705414	D LED SE303A INFRARED	91	ES-364906	SW SLIDE HSW0789-01-800
21	ED-360409	D PHOTO PN323B	92	ES-371027	SW SLIDE HSW0847-01-010 1-2
22	ED-371398	D SILICON DSA17-FB8 F12	93	ES-369603	SW SLIDE HSW0896-010 2-02-02N
23	ED-371397	D SILICON DSF10T-FA6 F10	94	ES-349474	SW TACT SKHHAM004A
24	ED-344280	D SILICON H GMA-01-FY2 F05	95	ET-361463	DETECTOR ON2170 Q.R
25	ED-307572	D SILICON H 1SS131	96	ET-370634	TR DTA143XS
26	ED-624903	D SILICON H 1S2473	97	ET-354415	TR DTA144ES
27	ED-367202	D SILICON S5566B F12	98	ET-353897	TR DTC114ES
28	ED-364034	D ZENER H HZS8.2J B1 F05	99	ET-360399	TR DTC114TS
29	ED-361915	D ZENER H HZS8.2J B3 F05	100	ET-364060	TR DTC143ES
30	ED-370786	D ZENER H HZS9.1J B2 F05	101	ET-354414	TR DTC144ES
31	ED-362998	D ZENER H HZS9.1J B3 F05	102	ET-354094	TR DTC144WS
32	ED-346622	D ZENER H HZ30 1	103	ET-356236	TR FET 2SK363 GR,BL
33	ED-346597	D ZENER H HZ4 B1	104	ET-361490	TR PHOTO PN268 R.S
34	ED-337292	D ZENER H HZ5 B1	105	ET-364064	TR UN4119
35	ED-309069	D ZENER H HZ6 B2	106	ET-360400	TR UN4210
36	ED-337266	D ZENER H HZ9 A1	107	ET-308472	TR 2SA1115 E.F.G F05
37	EE-337173-A	TV TUNER TEEF1-008A	108	ET-364093	TR 2SA1283 E.F F05
38	EE-365749	TV TUNER TEMZ1-0008A SK	109	ET-356224	TR 2SA1286 G.H,J F05
39	*EF-344106	FUSE ICP-N10 50V 0.4A	110	ET-352726	TR 2SA1392 T.U
40	*EF-623103	FUSE SEMKO T 250V 1.00A	111	ET-305463	TR 2SA970 GR,BL
41	*EF-258344	FUSE SEMKO T 250V 800MA	112	ET-356153	TR 2SB643 Q.R.S.T
42	EH-360340-A	DL EFD-EN645A31P	113	ET-321644	TR 2SC1213 C
43	EH-360339	FILTER LC AP AF-25P	114	ET-308977	TR 2SC2274K F F05
44	EH-367043	FILTER LC BP H289BNKN-7235LHD	115	ET-308141	TR 2SC2603 G F05
45	EH-364067	FILTER LC BP H297BAIN-5969DCD	116	ET-709703	TR 2SC2673 P.Q
46	EH-364069	FILTER LC LP H289LNJN-6231LRD	117	ET-353366	TR 2SC3112 A.B
47	EH-364066	FILTER LC LP H322LWQ-1168MAD	118	ET-355669	TR 2SC3246 G.H,J F05
48	EI-360561	IC AN3792	119	ET-360067	TR 2SC3330 T.U F05
49	EI-360563	IC AN3794	120	ET-349081	TR 2SC3383 S.T
50	EI-358853	IC BA235	121	ET-371028	TR 2SD1266 P.Q
51	EI-360648	IC BA5115	122	ET-348948	TR 2SD1273 P.Q
52	EI-353421	IC BA6229	123	ET-338565	TR 2SD1302 R.S
53	EI-372243	IC BA7107S	124	ET-372080	TR 2SD1330 S.T
54	EI-352714	IC HA11752	125	EV-369716	VR ROTARY RK09K1130 B103
55	EI-328593	IC HD14053BP	126	EV-369717	VR ROTARY RK09K1130 B104
56	EI-371023-A	IC HH3201P	127	EV-370992	VR ROTARY RK09K1130 B504
57	EI-371683	IC MBM2212-25P-G	128	EX-361672	DEW SENSOR (HEATER) MRX
58	EI-361554	IC MB88301A-P	129	EZ-372209	BATTERY LITHIUM CL2020-1VC
59	EI-366681	IC MB88521-140M	130	HE-361456	HEAD E HVFMD0005B
60	EI-373193	IC MB88551-256N	131	HR-361454	HEAD COMBO HVMLA1004C
61	EI-360560	IC MN6178XAL	132	MB-360534	BELT IDLER
62	EI-373171	IC M51321P	133	MB-360533	BELT PAL
63	EI-346071	IC M5218L-21	134	MB-364011	BELT SYNC NB930N15-020T
64	EI-360565	IC M5223P	135	MP-361543-B	PINCH ROLLER PART
65	EI-356811	IC M5224P	136	MZ-361314-A	GEAR (1)
66	EI-347769	IC M54514AP	137	MZ-360640-A	GEAR (2)
67	EI-360564	IC M54548L	138	MZ-361313	GEAR (3)
68	EI-360396	IC S-8054HN	139	MZ-360639	GEAR (4)
69	EI-363347	IC TC9018P	140	MZ-360638	GEAR (5)
70	EI-367271	IC UPC1490HA	141	MZ-364677	GEAR CAM EJECT(2)
71	EI-358506	IC UPC1513HA	142	MZ-364676	GEAR CAM MAIN(2)
			143	MZ-B360642	GEAR EJECT PART
			144	MZ-360384	GEAR LOADING (S)
			145	MZ-360385-A	GEAR LOADING (T)
			146	MZ-366960	GEAR TU BLK (2)
			147	MZ-360453	WORM GEAR
			148	VT-372187	ROTARY ENCODER D22Q-Rs1
			149	VT-360148-B	VERTICAL POLE PART

HEAD DRUM BLOCK

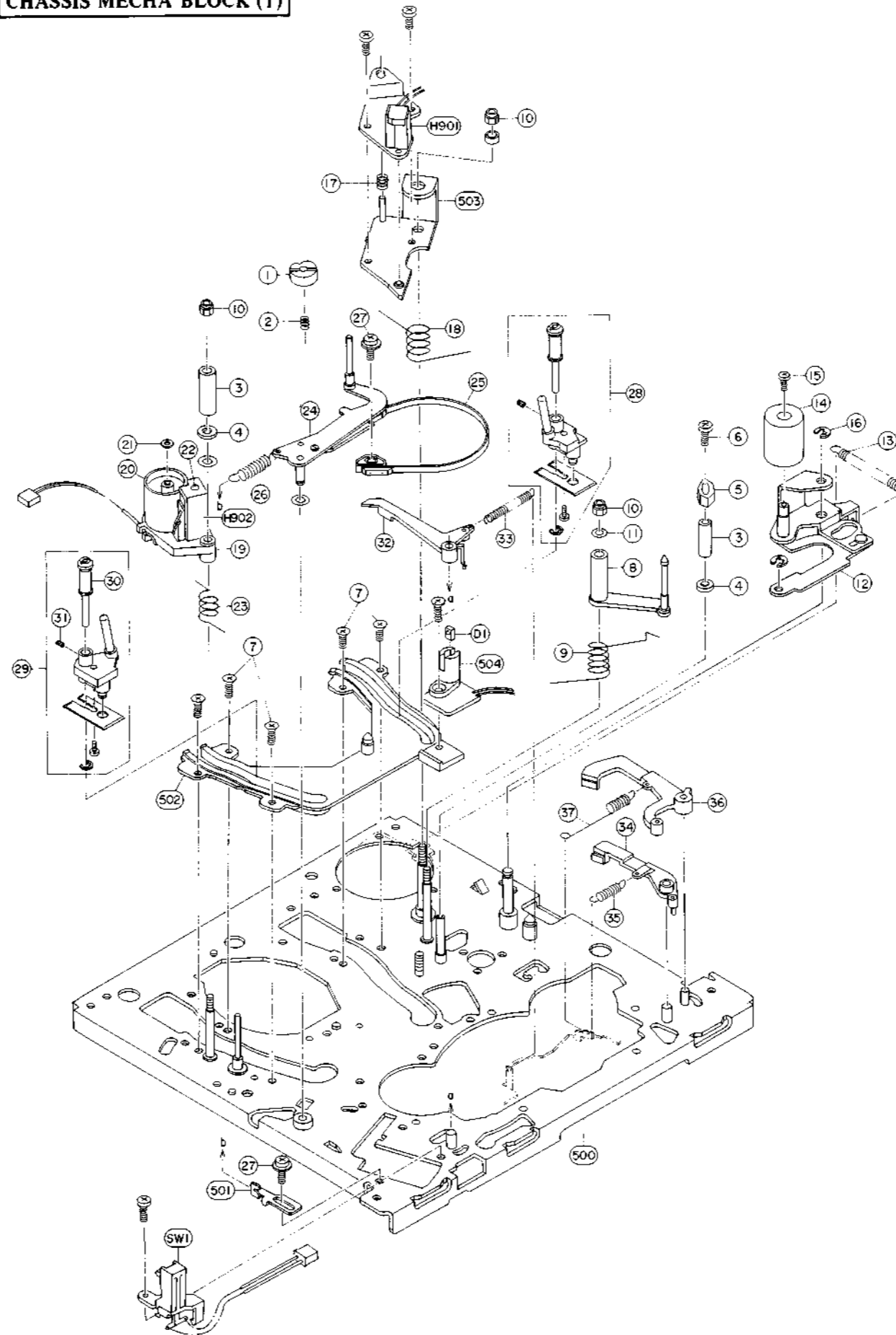


2. HEAD DRUM BLOCK

Ref. No.	Part No.	Description
2-1	BV-V1030A210E	LOWER DRUM BLK VS-220U
2-2	ZS-354332	PAN26X08STL CMT SW
2-3	BV-V1030A220F	UPPER DRUM BLK VS-303S
2-4	ZS-362241	BID30X09STL CMT
2-5	ZS-432843	PAN26X04STL CMT
2-TH901	EX-361672	DEW SENSOR (HEATER) MRX
2-6	BM-M3224A020A	PC MOTOR BLK SM-240
2-7	BV-B362443B	YOKE MAGNET (3) PART
2-8	ZS-356536	PAN26X06BRS N13
2-9	VT-361452	DRUM EARTH SP ASSY(A)
2-10	ZS-421806	PAN30X08STL CMT

NOTE: The parts reference numbered here except the ones in 500's are normally stocked for replacement purpose. The rest of the parts shown in this manual are not stocked since they are seldom required for routine service.

CHASSIS MECHA BLOCK (1)



3. CHASSIS MECHA BLOCK (1)

Ref. No.	Part No.	Description
3-1	ZS-360372-A	SCREW ADJUST
3-2	ZG-363349	SP PUSH ADJUST SCREW
3-3	MS-372186	GUIDE TAPE (6)
3-4	MS-370840-A	GUIDE TAPE (5)
3-5	MS-362181	GUIDE TAPE TU
3-6	ZS-608095	PAN20X05STL CMT
3-7	ZS-360391	SCREW SPECIAL
3-8	BL-B360353	LEVER REVIEW PART
3-9	ZG-360605	SP TORSION REVIEW ARM
3-10	ZW-350839	N30 NYLON
3-11	ZW-324417	PW31X060X050PSL
3-12	BL-B360361-B	ARM PINCH ROLLER PART
3-13	ZG-360602	SP PULL PINCH
3-14	MP-361543-B	PINCH ROLLER PART
3-15	ZS-477876	PAN20X03STL CMT
3-16	ZW-270101	RING E 300SUP CMT
3-17	ZG-313258	SP C-03.5/0.80-10.0 C-102
3-18	ZG-360603	SP TORSION A/C HEAD
3-19	MZ-B362281	HOLDER FE HEAD (2) PART
3-20	MR-364335	ROLLER IMPEDANCE
3-21	ZW-361458	PUSH WASHER 16X032X025PSL
3-22	ZS-460440	PAN20X04STL CMT
3-23	ZG-360604	SP TORSION HOLDER FE HEAD
3-24	BL-B360342-A	LEVER TENSION PART
3-25	BL-B360350	ARM TENSION BAND PART
3-26	ZG-321731	SP T2-04.0/0.40-25.0 T2-115
3-27	ZS-200614	SCREW TRIPLE PAN30X06
3-28	BV-V1047A080A	LOADING LEADER(R) BLK VS-112EG
3-29	BV-V1047A090A	LOADING LEADER(L) BLK VS-112EG
3-30	VT-360148-B	VERTICAL POLE PART
3-31	ZS-321729	6SET20X040SCM PKR WP
3-32	BL-B360486	LEVER FF BRAKE PART
3-33	ZG-364338-A	SP PULL FF BRAKE
3-34	ML-B364686-A	LEVER SUB BRAKE(R-2) PART
3-35	ZG-364339	SP PULL REW BRAKE
3-36	ML-B364686	LEVER BRAKE REVIEW(2) PART
3-37	ZG-364337	SP PULL REVIEW BRAKE
3-D1	ED-357540	D LED LN59
3-H901	HR-361454	HEAD COMBO HVMLA1004C
3-H902	HE-361456	HEAD E HVFMD0005B
3-SW1	ES-360433	SW LEAF MRX

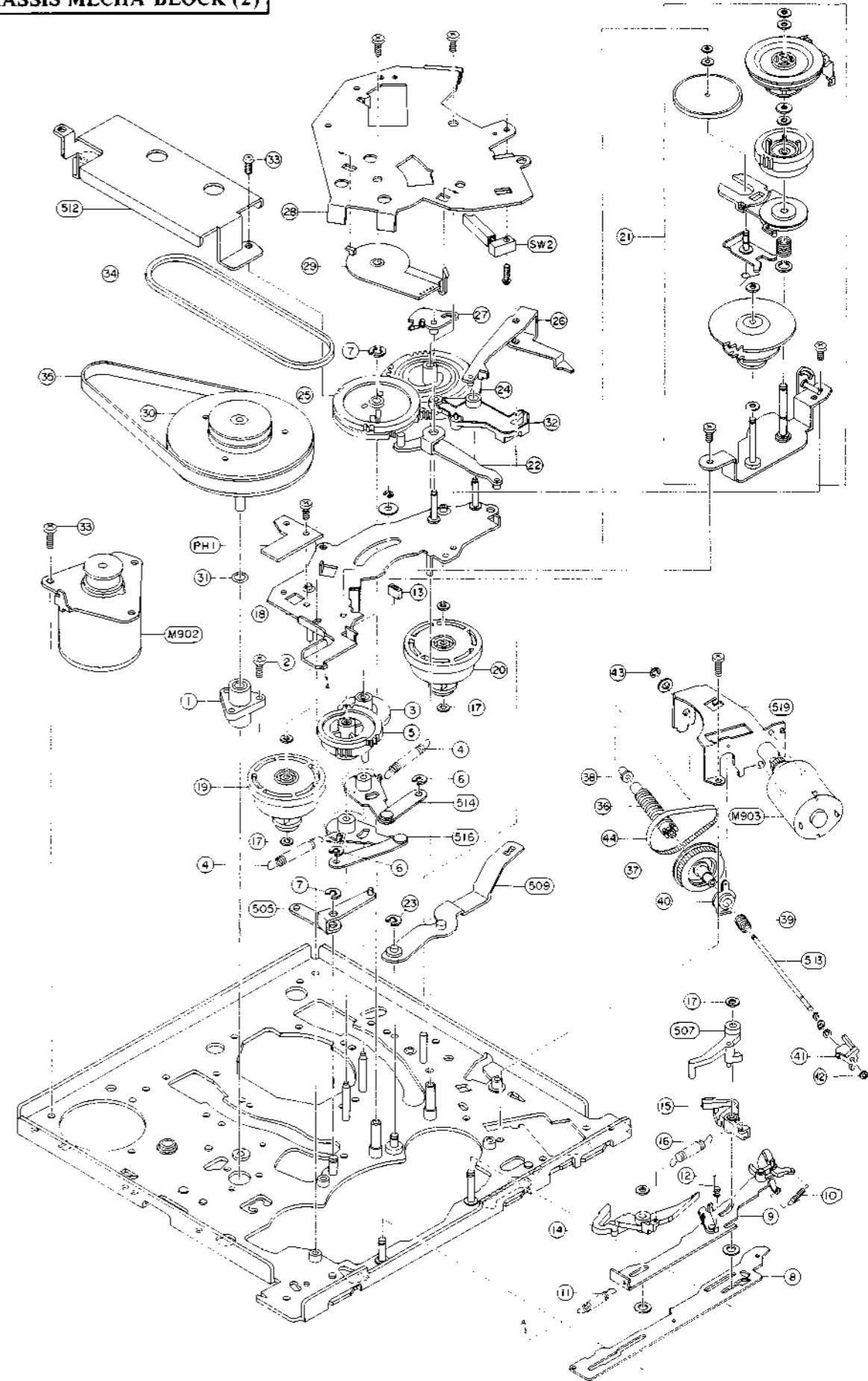
NOTE: The parts reference numbered here except the ones in 500's are normally stocked for replacement purpose. The rest of the parts shown in this manual are not stocked since they are seldom required for routine service.

4. CHASSIS MECHA BLOCK (2)

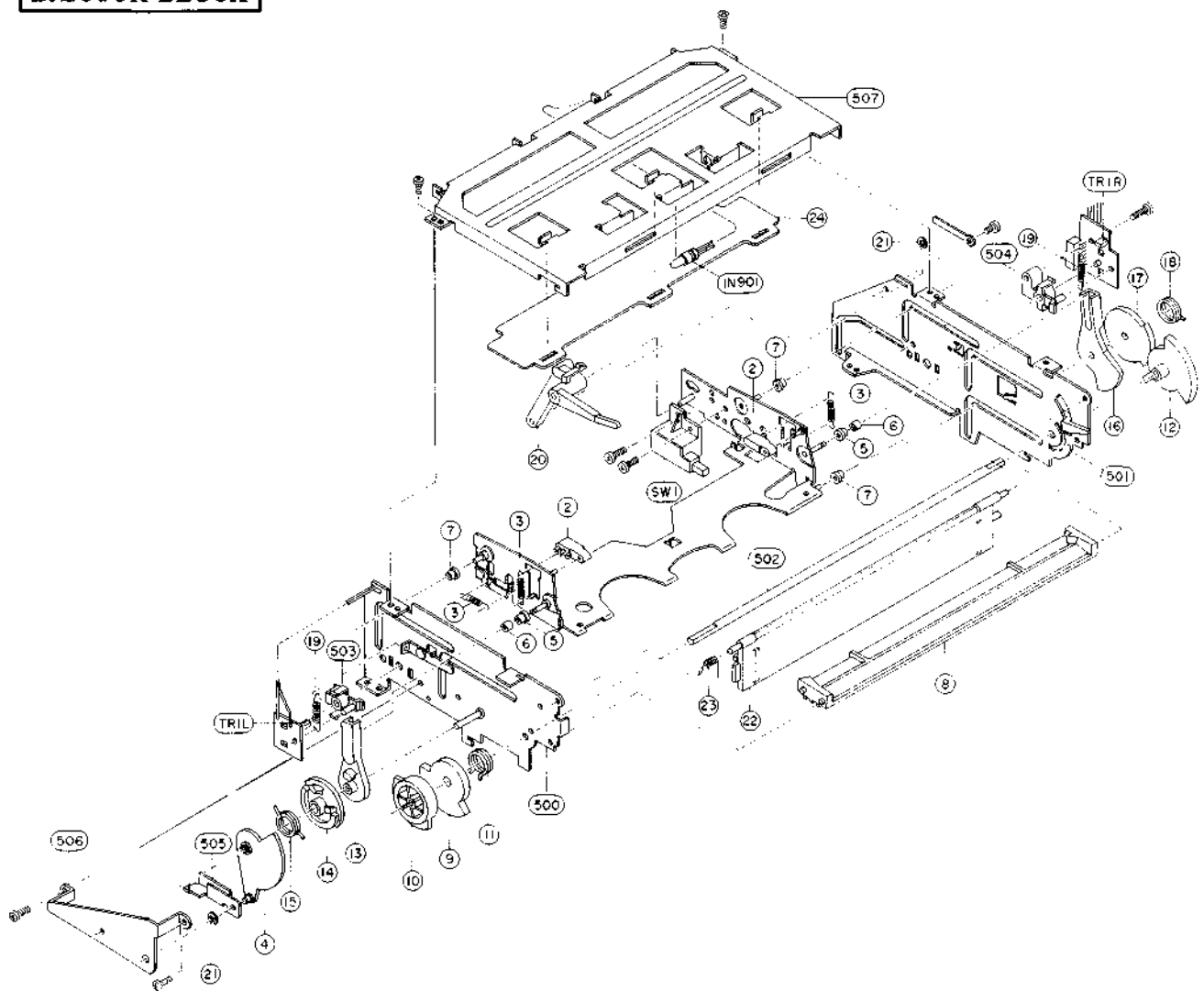
CHASSIS MECHA BLOCK (2)

Ref. No.	Part No.	Description
4-1	MZ-B360528	HOLDER CAPSTAN PART
4-2	ZS-379350	PAN30X06STL CMT
4-3	MZ-360384	GEAR LOADING (S)
4-4	ZG-360601-A	SP PULL LOADING
4-5	MZ-360385-A	GEAR LOADING (T)
4-6	ZW-357164	RING E 230SUP CMT
4-7	ZW-270101	RING E 300SUP CMT
4-8	ML-366738	PLATE MAIN SLIDE(2)
4-9	MZ-B366734	PLATE F/R SLIDE (2)PART
4-10	ZG-358276	SP T6-03.2 / 0.20-12.5 T6-041
4-11	ZG-350891	SP T2-04.0 / 0.40-22.4 T2-114
4-12	ZG-360438	SP TORSION LIFTER
4-13	MB-366733	STOPPER SLIDE (2)
4-14	ML-B364684	ARM(TU) MAIN BRAKE(2) PART
4-15	ML-B364683	ARM(S) MAIN BRAKE(2) PART
4-16	ZG-366617	SP PULL MAIN BRAKE
4-17	ZW-360541	WASHER POLY SLIDER(3)
4-18	MZ-B360425-B	SUB FRAME PART
4-19	BR-B365715-B	TAKE-UP REEL TABLE PART 2
4-20	BR-B365716-B	SUPPLY REEL TABLE PART 2
4-21	MZ-366960	GEAR TU BLK (2)
4-22	ML-B360480-B	LEVER CAM SLIDE PART
4-23	ZW-410051	RETAINING RING E250SUP CMT
4-24	MZ-364677	GEAR CAM EJECT(2)
4-25	MZ-364676	GEAR CAM MAIN(2)
4-26	ML-B366735	LEVER CAM TENSION(2) PART
4-27	ML-366736	ARM SET FREE(2)
4-28	MZ-360477-B	PLATE MODE SW
4-29	VT-372187	ROTARY ENCODER D22Q-R9-1
4-30	BF-B360531-B	FLYWHEEL CAPSTAN PART
4-31	ZW-360539	STOPPER OIL
4-32	ML-B366615-A	LEVER CAM F/R PART
4-33	ZS-379350	PAN30X06STL CMT
4-34	MB-360534	BELT IDLER
4-35	MB-360533	BELT PAL
4-36	MZ-360453	WORM GEAR
4-37	MR-364010	PULLEY WORM
4-38	ZW-360479-A	WASHER THRUST WORM
4-39	ZG-360441	SP TORSION ONE WAY
4-40	MZ-360440-A	HOLDER PULLEY WORM
4-41	MR-360432	PULLEY TRIGGER
4-42	ZW-361458	PUSH WASHER 16X032X025PSL
4-43	ZW-356657	RING E150SUP CMT
4-44	MB-364011	BELT SYNC NB930N15-020T
4-M902	BM-361544-B	MOTOR FG KCX-38FS5B
4-M903	BM-B361467	LOADING MOTOR PART
4-SW2	ES-361479	SW LEAF MSW-1594C
4-PH1	ET-361463	DETECTOR ON2170 Q.R

NOTE: The parts reference numbered here except the ones in 500's are normally stocked for replacement purpose. The rest of the parts shown in this manual are not stocked since they are seldom required for routine service.



EJECTOR BLOCK



5. EJECTOR BLOCK

Ref. No.	Part No.	Description
5-1	BV-V1047A250E	EJECTOR BLK VS-240
5-2	ML-361316	ARM PRESSING
5-3	ZG-357865	SP T5-04.0/0.40-11.2 T5-108
5-4	MZ-8360642	GEAR EJECT PART
5-5	MR-361310	ROLLER (1)
5-6	MR-361311	ROLLER (2)
5-7	MR-361312	ROLLER (3)
5-8	SZ-360607	GUIDE
5-9	MZ-361314-A	GEAR (1)
5-10	MZ-361313	GEAR (3)
5-11	ZG-380615	SP TORSION (EJ)
5-12	MZ-360640-A	GEAR (2)
5-13	ML-360635	ARM LOADING (L)
5-14	MZ-360639	GEAR (4)
5-15	ZG-360614	SP TORSION (L)
5-16	ML-360634	ARM LOADING (R)
5-17	MZ-360638	GEAR (5)
5-18	ZG-360613	SP TORSION (R)
5-19	ZG-358212	SP T5-06.3/0.50-16.0 T5-180

Ref. No.	Part No.	Description
5-20	BL-B361308	ARM LID OPENER PART
5-21	ZW-357164	RING E 230SUP CMT
5-IN901	EL-367397	PL CORD 14.0V 80MA 250/250
5-IN902	EL-367396	PL CORD 14.0V 80MA 190/190
5-SW1	ES-353622-A	SW PUSH EVQ-WU7001 02-2
5-TR1L	ET-361490	TR PHOTO PN268 R.S
5-TR1R	ET-361490	TR PHOTO PN268 R.S
5-22	SE-361317R-A	MASK CASSETTE HQ
5-23	ZG-360618	SP TORSION
5-24	SP-364666	PLATE MIRROR (2)

NOTE: The parts reference numbered here except the ones in 500's are normally stocked for replacement purpose. The rest of the parts shown in this manual are not stocked since they are seldom required for routine service.

6. P.C BOARD BLOCK

Ref. No.	Part No.	Description
6-1A	BA-V1070A300A	PC MAIN(SECAM) BLK VS-245S
6-1B	BA-V1070A300B	PC MAIN(SECAM) BLK VS-240SK
6-1C	BA-V1070Q300C	PC MAIN(SECAM) BLK VS-247S [VS-247S/248S]
6-2A	BA-V1069A330L	PC OPERATION BLK VS-245S
6-2B	BA-V1069A330M	PC OPERATION BLK VS-240SK
6-3	BA-V1071A400D	PC PRE AMP BLK VS-245S

PC MAIN BLK CONSISTS OF FOLLOWING P.C BOARD.

- MAIN P.C BOARD
- MAIN (VIDEO) P.C BOARD

PC OPERATION BLK CONSISTS OF FOLLOWING P.C BOARD.

- OPERATION (A) P.C BOARD
- OPERATION (B) P.C BOARD

7. MAIN P.C BOARD

Ref. No.	Part No.	Description
7-C308	EC-328081	C EC V CUT AS1 221M 80.0DC
7-C309	EC-364958	C EC V CUT SME 222M 35.0DC
7-C310	EC-364958	C EC V CUT SME 222M 35.0DC
7-D201	ED-344280	D SILICON H GMA-01-FY2 F05
7-D202	ED-362998	D ZENER H HZS9.1J B3 F05
7-D203	ED-344280	D SILICON H GMA-01-FY2 F05
7-D204	ED-344280	D SILICON H GMA-01-FY2 F05
7-D205	ED-344280	D SILICON H GMA-01-FY2 F05
7-D207	ED-337292	D ZENER H HZ5 B1
7-D301	ED-367202	D SILICON S5566B F12
7-D302	ED-344280	D SILICON H GMA-01-FY2 F05
7-D303	ED-344280	D SILICON H GMA-01-FY2 F05
7-D304	ED-346582	D ZENER H HZ30L 1
7-D401	ED-370786	D ZENER H HZS9.1J B2 F05
7-D403	ED-361915	D ZENER H HZS8.2J B3 F05
7-D404	ED-344280	D SILICON H GMA-01-FY2 F05
7-D405	ED-344280	D SILICON H GMA-01-FY2 F05
7-D406	ED-344280	D SILICON H GMA-01-FY2 F05
7-D407	ED-344280	D SILICON H GMA-01-FY2 F05
7-D408	ED-344280	D SILICON H GMA-01-FY2 F05
7-D409	ED-344280	D SILICON H GMA-01-FY2 F05
7-D410	ED-344280	D SILICON H GMA-01-FY2 F05
7-D411	ED-344280	D SILICON H GMA-01-FY2 F05
7-D601	ED-367502	D ZENER H HZS9L A1 F05
7-D602	ED-344280	D SILICON H GMA-01-FY2 F05
7-D603	ED-344280	D SILICON H GMA-01-FY2 F05
7-D604	ED-367502	D ZENER H HZS9L A1 F05
7-D605	ED-344280	D SILICON H GMA-01-FY2 F05
7-FL501	EO-360647	COIL OSC 1 MX-102
7-FL551	EH-360339	FILTER LC AP AF-25P
7-FR233	*ER-360559	R FUSE H F12 RF50S 1/2W 1R0J
7-FR308	*ER-372129	R FUSE H S10 ERQ14LE 1/4W 2R2K
7-FR309	*ER-371796	R FUSE H S17 ERQ-12H 1/2W 1R0J
7-FR310	*ER-362256	R FUSE H S10 ERQ14LE 1/4W R47K
7-FR323	*ER-319455	R FUSE H S10 ERD2FC 1/4W 10R0G
7-IC201	EI-360561	IC AN3792
7-IC202	EI-360560	IC MN6178XAL
7-IC203	EI-360563	IC AN3794
7-IC204	EI-367571	IC LA6358T
7-IC205	EI-367571	IC LA6358T
7-IC206	EI-360564	IC M54548L
7-IC207	EI-358853	IC BA235
7-IC301	EI-367571	IC LA6358T
7-IC401	EI-366681	IC MB88521-140M
7-IC402	EI-353421	IC BA6229

Ref. No.	Part No.	Description
7-IC403	EI-356811	IC M5224P
7-IC404	EI-360396	IC S-8054HN
7-IC405	EI-363347	IC TC9018P
7-IC501	EI-360648	IC BA5115
7-IC502	EI-358506	IC UPC1513HA
7-IC601	EI-346071	IC M5218L-21 [S ONLY]
7-L201	EO-345866	COIL FIX 1 EL0606SKI 100J
7-L501	EO-361913	COIL FIX 1 L-8 472J
7-L502	EO-370639	COIL FIX 1 L-8 272J
7-L551	EO-345881	COIL FIX 1 EL0606SKI 101J
7-L552	EO-345881	COIL FIX 1 EL0606SKI 101J
7-L553	EO-345876	COIL FIX 1 EL0606SKI 470J
7-L601	EO-345874	COIL FIX 1 EL0606SKI 330J
7-L602	EO-360554	COIL FIX 1 LAL02 F05 221K
7-L603	EO-345881	COIL FIX 1 EL0606SKI 101J
7-L604	EO-332105	COIL FIX 1 EL0606SKI 121J
7-SF301	*EF-344106	FUSE ICP-N10 50V 0.4A
7-TR201	ET-353897	TR DTC114ES
7-TR202	ET-308472	TR 2SA1115 E.F.G F05
7-TR203	ET-360400	TR UN4210
7-TR204	ET-360400	TR UN4210
7-TR205	ET-354414	TR DTC114ES
7-TR206	ET-360399	TR DTC114TS
7-TR207	ET-308472	TR 2SA1115 E.F.G F05
7-TR208	ET-308472	TR 2SA1115 E.F.G F05
7-TR209	ET-353897	TR DTC114ES
7-TR210	ET-353897	TR DTC114ES
7-TR211	ET-308141	TR 2SC2603 G F05
7-TR301	ET-355669	TR 2SC3246 G.H.J F05
7-TR302	ET-371028	TR 2SD1266 P,Q
7-TR303	ET-352726	TR 2SA1392 T,U
7-TR304	ET-308977	TR 2SC2274K F F05
7-TR305	ET-360067	TR 2SC3330 T,U F05
7-TR306	ET-371028	TR 2SD1266 P,Q
7-TR307	ET-348948	TR 2SD1273 P,Q
7-TR308	ET-360067	TR 2SC3330 T,U F05
7-TR309	ET-356224	TR 2SA1286 G.H.J F05
7-TR311	ET-354094	TR DTC114WS
7-TR312	ET-354414	TR DTC114ES
7-TR313	ET-356224	TR 2SA1286 G.H.J F05
7-TR401	ET-354415	TR DTA144ES
7-TR403	ET-308141	TR 2SC2603 G F05
7-TR404	ET-360400	TR UN4210
7-TR405	ET-360400	TR UN4210
7-TR406	ET-308472	TR 2SA1115 E.F.G F05
7-TR407	ET-308472	TR 2SA1115 E.F.G F05
7-TR408	ET-308472	TR 2SA1115 E.F.G F05
7-TR409	ET-354094	TR DTC114WS
7-TR502	ET-308141	TR 2SC2603 G F05
7-TR503	ET-354414	TR DTC114ES
7-TR551	ET-308472	TR 2SA1115 E.F.G F05
7-TR552	ET-308141	TR 2SC2603 G F05
7-TR553	ET-308141	TR 2SC2603 G F05
7-TR554	ET-308472	TR 2SA1115 E.F.G F05
7-TR555	ET-308141	TR 2SC2603 G F05
7-TR556	ET-308472	TR 2SA1115 E.F.G F05
7-TR557	ET-308472	TR 2SA1115 E.F.G F05
7-TR558	ET-308472	TR 2SA1115 E.F.G F05
7-TR601	ET-356336	TR DTA114ES
7-TR602	ET-356224	TR 2SA1286 G.H.J F05
7-TR603	ET-308141	TR 2SC2603 G F05
7-TR604	ET-308141	TR 2SC2603 G F05
7-TR605	ET-321644	TR 2SC1213 C
7-TR606	ET-364060	TR DTC114ES [S]
7-TR607	ET-356236	TR FET 2SK363 GR.BL [S]
7-TR608	ET-308141	TR 2SC2603 G F05
7-TR609	ET-308472	TR 2SA1115 E.F.G F05
7-TR610	ET-308472	TR 2SA1115 E.F.G F05
7-TR611	ET-308472	TR 2SA1115 E.F.G F05
7-TR612	ET-308472	TR 2SA1115 E.F.G F05
7-TR613	ET-364093	TR 2SA1283 E.F F05
7-TR614	ET-308141	TR 2SC2603 G F05
7-VR201	EV-366436	R S-FIX H VM6CKPV31S 3P 3W104
7-VR202	EV-356582	R S-FIX H RH0615CS4J 3P 4 73
7-VR301	EV-371696	R S-FIX H VM6CKPV31S 3P 3W302

Ref. No.	Part No.	Description
7-VR401	EV-363511	R S-FIX EVTK-4CA00BQ4 3P 473
7-VR501	EV-356577	R S-FIX H RH0615C14J 3P 103
7-VR502	EV-356582	R S-FIX H RH0615CS4J 3P 473
7-X401	EI-347991	OSC CE CSA6.00MS 6MHZ
7-1A	SP-373188A	PANEL REAR S [S]
7-1B	SP-373188B	PANEL REAR SK [SK]
7-2A	BV-V1048A900A	VIF BLK VS-112S [S]
7-2B	BV-V1070A900A	VIF BLK VS-240SK [SK]
7-2C	BV-V1070A900B	VIF BLK VS-247SK [VS-247S/248S]
7-3A	EE-337173-A	TV TUNER TEEF1-008A [S]
7-3B	EE-365749	TV TUNER TEMZ1-0008A SK [SK]
7-3C	EE-375426	TV TUNER TEMQ1-009A [VS-247S/248S]
7-4A	BV-371163	RF CONV/BOOSTER MDLC3F553X S [S]
7-4B	BV-372182	RF CONVERTOR SW*V1070SK [SK]

8. MAIN (VIDEO) P.C BOARD

Ref. No.	Part No.	Description
8-DL1	EH-360340-A	DL EFD-EN645A31P
8-D1	ED-344280	D SILICON H GMA-01-FY2 F05
8-D2	ED-344280	D SILICON H GMA-01-FY2 F05
8-D3	ED-344280	D SILICON H GMA-01-FY2 F05
8-D5	ED-344280	D SILICON H GMA-01-FY2 F05
8-D8	ED-344280	D SILICON H GMA-01-FY2 F05
8-D101	ED-344280	D SILICON H GMA-01-FY2 F05
8-D102	ED-344280	D SILICON H GMA-01-FY2 F05
8-D103	ED-344280	D SILICON H GMA-01-FY2 F05
8-D104	ED-344280	D SILICON H GMA-01-FY2 F05
8-FL1	EH-364066	FILTER LC LP H322LWQ-1166MAD
8-FL101	EH-367043	FILTER LC BP H289BNKN-7235LHD
8-FL102	EH-364067	FILTER LC BP H297BAIN-5969DCD
8-FL103	EH-364069	FILTER LC LP H289LNJN-6231LRD
8-FR1	*ER-348272	R FUSE H S10 ERD2FC 1/4W 12R0G
8-IC1	EI-371023-A	IC HM3201P
8-IC101	EI-372243	IC BA7107S
8-L1	EO-351865	COIL FIX 1 LAL02 F05 330J
8-L3	EO-351868	COIL FIX 1 LAL02 F05 470K
8-L4	EO-357507	COIL FIX 1 LAL02 F05 121K
8-L5	EO-357507	COIL FIX 1 LAL02 F05 121K
8-L6	EO-354600	COIL FIX 1 LAL02 F05 101K
8-L7	EO-354600	COIL FIX 1 LAL02 F05 101K
8-L8	EO-345881	COIL FIX 1 EL0606SKI 101J
8-L9	EO-360555	COIL FIX 1 LAL02 F05 180K
8-L10	EO-360555	COIL FIX 1 LAL02 F05 180K
8-L11	EO-345881	COIL FIX 1 EL0606SKI 101J
8-L12	EO-351868	COIL FIX 1 LAL02 F05 470K
8-L13	EO-356599	COIL FIX 1 LAL02 F05 270K
8-L14	EO-345881	COIL FIX 1 EL0606SKI 101J
8-L15	EO-351869	COIL FIX 1 LAL02 F05 820K
8-L16	EO-353902	COIL FIX 1 LAL02 F05 680K
8-L17	EO-351865	COIL FIX 1 LAL02 F05 330J
8-L18	EO-345881	COIL FIX 1 EL0606SKI 101J
8-L19	EO-345881	COIL FIX 1 EL0606SKI 101J
8-L20	EO-345881	COIL FIX 1 EL0606SKI 101J
8-L21	EO-357507	COIL FIX 1 LAL02 F05 121K
8-L22	EO-357507	COIL FIX 1 LAL02 F05 121K
8-L23	EO-360554	COIL FIX 1 LAL02 F05 221K
8-L24	EO-360554	COIL FIX 1 LAL02 F05 221K
8-L101	EO-345881	COIL FIX 1 EL0606SKI 101J
8-L102	EO-357508	COIL FIX 1 LAL02 F05 151K
8-L103	EO-357508	COIL FIX 1 LAL02 F05 151K
8-L104	EO-345881	COIL FIX 1 EL0606SKI 101J
8-L105	EO-345881	COIL FIX 1 EL0606SKI 101J
8-L106	EO-353900	COIL FIX 1 LAL02 F05 150K
8-SW101	ES-371027	SW SLIDE HSW0847-01-010 1-2
8-TR1	ET-308472	TR 2SA1115 E.F.G F05

Ref. No.	Part No.	Description
8-TR2	ET-308141	TR 2SC2603 G F05
8-TR3	ET-354414	TR DTC144ES
8-TR4	ET-308472	TR 2SA1115 E.F.G F05
8-TR5	ET-308141	TR 2SC2603 G F05
8-TR9	ET-308141	TR 2SC2603 G F05
8-TR10	ET-308141	TR 2SC2603 G F05
8-TR12	ET-308141	TR 2SC2603 G F05
8-TR13	ET-308141	TR 2SC2603 G F05
8-TR14	ET-308472	TR 2SA1115 E.F.G F05
8-TR15	ET-356224	TR 2SA1286 G.H.J F05
8-TR16	ET-354414	TR DTC144ES
8-TR17	ET-354415	TR DTA144ES
8-TR19	ET-308141	TR 2SC2603 G F05
8-TR21	ET-308141	TR 2SC2603 G F05
8-TR22	ET-353897	TR DTC114ES
8-TR101	ET-353897	TR DTC114ES
8-TR102	ET-354415	TR DTA144ES
8-TR103	ET-364064	TR UN4119
8-TR104	ET-308141	TR 2SC2603 G F05
8-TR105	ET-308141	TR 2SC2603 G F05
8-TR106	ET-308141	TR 2SC2603 G F05
8-TR107	ET-308472	TR 2SA1115 E.F.G F05
8-VL101	EO-364062	COIL VARI 1 F291CNS-0666GW
8-VL102	EO-364062	COIL VARI 1 F291CNS-0666GW
8-VR1	EV-366845	R S-FIX V RVF8W01 3P 102
8-VR101	EV-347942	R S-FIX V RVF8W01 3P 502
8-VR102	EV-326719	R S-FIX V TM8KH1-1S 3P0.50W203
8-X101	EI-309878	OSC X'TAL 4.433619MHZ

9. OPERATION (A) P.C BOARD

Ref. No.	Part No.	Description
9-D901	ED-360409	D PHOTO PN323B
9-D902	EM-366754	IND LE LB-402MB4
9-D903	ED-355607	D LED PR5505S RED
9-D904	ED-355607	D LED PR5505S RED
9-D905	ED-356424	D LED BG5525S GREEN
9-D906	ED-355607	D LED PR5505S RED
9-D907	ED-355607	D LED PR5505S RED
9-D908	ED-355607	D LED PR5505S RED
9-D911	ED-355607	D LED PR5505S RED
9-D912	ED-355607	D LED PR5505S RED
9-D913	ED-356424	D LED BG5525S GREEN
9-D914	ED-624903	D SILICON H 1S2473
9-D915	ED-307572	D SILICON H 1SS131
9-D916	ED-307572	D SILICON H 1SS131
9-D917	ED-307572	D SILICON H 1SS131
9-D918	ED-307572	D SILICON H 1SS131
9-D920	ED-624903	D SILICON H 1S2473
9-D923	ED-624903	D SILICON H 1S2473
9-IC901	EI-373193	IC MB88551-256N
9-IC902	EI-367271	IC UPCL490HA
9-IC903	EI-347769	IC M54514AP
9-IC904	EI-371683	IC MBM2212-25P-G
9-IC905	EI-361554	IC MB88301A-P
9-IC906	EI-360396	IC S-8054HN
9-SW901	ES-349474	SW TACT SKHHAM004A
9-SW902	ES-349474	SW TACT SKHHAM004A
9-SW903	ES-349474	SW TACT SKHHAM004A
9-SW904	ES-349474	SW TACT SKHHAM004A
9-SW905	ES-349474	SW TACT SKHHAM004A
9-SW906	ES-349474	SW TACT SKHHAM004A
9-SW907	ES-349474	SW TACT SKHHAM004A
9-SW908	ES-349474	SW TACT SKHHAM004A
9-SW909	ES-349474	SW TACT SKHHAM004A
9-SW910	ES-349474	SW TACT SKHHAM004A
9-SW911	ES-349474	SW TACT SKHHAM004A
9-SW912	ES-349474	SW TACT SKHHAM004A
9-SW915	ES-349474	SW TACT SKHHAM004A
9-SW916	ES-349474	SW TACT SKHHAM004A
9-SW917	ES-360408	SW SLIDE ESD-14187 1-01-02N [S]

Ref. No.	Part No.	Description
9-SW918	ES-366697	SW SLIDE ESD-14137A 1-01-03N
9-SW919	ES-364906	SW SLIDE HSW0789-01-800
9-TR901	ET-354415	TR DTA144ES
9-TR902	ET-356153	TR 2SB643 Q.R.S.T
9-TR903	ET-356153	TR 2SB643 Q.R.S.T
9-VR901	EV-369716	VR ROTARY RK09K1130 B103
9-VR902	EV-369717	VR ROTARY RK09K1130 B104
9-VR903	EV-370992	VR ROTARY RK09K1130 B504
9-X901	EI-356371	OSC X'TAL MS-309 4.194304MHZ

10. TRANS. P.C BOARD

Ref. No.	Part No.	Description
10-C701	*EC-369818	C CE V CS17FZ 103Z 400AC
10-D701	*ED-371397	D SILICON DSF10T-FA6 F10
10-D702	*ED-371397	D SILICON DSF10T-FA6 F10
10-D703	*ED-371397	D SILICON DSF10T-FA6 F10
10-D704	*ED-371397	D SILICON DSF10T-FA6 F10
10-D705	*ED-371398	D SILICON DSA17-FB8 F12
10-D706	*ED-371398	D SILICON DSA17-FB8 F12
10-D707	*ED-371398	D SILICON DSA17-FB8 F12
10-D708	*ED-371398	D SILICON DSA17-FB8 F12
10-F1	*EF-258344	FUSE SEMKO T 250V 800MA
10-F2	*EF-623103	FUSE SEMKO T 250V 100A
10-FR701	*ER-362257	R FUSE H S17 ERQ-12H 1/2W R47K
10-T1	*BT-373134	TRANS POW V70S-S
10-1	*EW-371933	AC CORD 200 KP419LTCE B100 A

11. PRE-AMP P.C BOARD

Ref. No.	Part No.	Description
11-IC801	EI-352714	IC HA11752
11-L801	EO-360554	COIL FIX 1 LAL02 F05 221K
11-L802	EO-345881	COIL FIX 1 EL0606SKI 101J
11-L803	EO-345881	COIL FIX 1 EL0606SKI 101J
11-L804	EO-330252	COIL FIX 1 EL0606SKI 101K
11-TR801	ET-308141	TR 2SC2603 G F05
11-TR802	ET-338565	TR 2SD1302 R.S
11-TR803	ET-372080	TR 2SD1330 S.T
11-TR804	ET-372080	TR 2SD1330 S.T

12. OPERATION (B) P.C BOARD

Ref. No.	Part No.	Description
12-CL951	EZ-372209	BATTERY LITHIUM CL2020-1VC
12-CL952	EZ-372209	BATTERY LITHIUM CL2020-1VC
12-D951	ED-346537	D ZENER H HZ9L A1
12-D952	ED-346537	D ZENER H HZ9L A1
12-D953	ED-346537	D ZENER H HZ9L A1
12-D954	ED-307572	D SILICON H 1SS131
12-D955	ED-307572	D SILICON H 1SS131
12-D956	ED-307572	D SILICON H 1SS131
12-D957	ED-309069	D ZENER H HZ6 B2
12-D959	ED-346597	D ZENER H HZ4 B1
12-D960	ED-307572	D SILICON H 1SS131
12-D961	ED-372680	D ZENER H HZS6L B3 F05
12-IC951	EI-367407	IC UPD6105C-002
12-IC952	EI-337530	IC UPC574J
12-L951	EO-353901	COIL FIX 1 LAL02 F05 560K
12-SF951	*EF-344106	FUSE ICP-N10 50V 0.4A
12-TR951	ET-364060	TR DTC143ES
12-TR952	ET-349081	TR 2SC3383 S.T
12-TR953	ET-308472	TR 2SA1115 E.F.G F05
12-TR954	ET-308472	TR 2SA1115 E.F.G F05
12-TR956	ET-353366	TR 2SC3112 A.B
12-TR957	ET-305463	TR 2SA970 GR.BL
12-TR958	ET-308141	TR 2SC2603 G F05
12-TR959	ET-355669	TR 2SC3246 G.H.J F05
12-VC951	EC-372191	C S-FIX H ECR-HA030E41 5.5-30

13. CHANNEL PLUS P.C BOARD (S ONLY)

Ref. No.	Part No.	Description
13-D1	ED-344280	D SILICON H GMA-01-FY2 F05
13-D2	ED-344280	D SILICON H GMA-01-FY2 F05
13-D3	ED-344280	D SILICON H GMA-01-FY2 F05
13-D4	ED-367948	D ZENER H HZS11J B2 F05
13-IC1	EI-373171	IC M51321P
13-IC2	EI-373171	IC M51321P
13-IC3	EI-328593	IC HD14053BP
13-P3	EJ-373170	SOCKET HXC1525-01-010 21P
13-P4	EJ-373170	SOCKET HXC1525-01-010 21P
13-TR1	ET-321644	TR 2SC1213 C
13-TR2	ET-354415	TR DTA144ES
13-TR3	ET-354415	TR DTA144ES
13-TR4	ET-354414	TR DTC144ES
13-TR5	ET-321644	TR 2SC1213 C

14. CONNECTOR P.C BOARD (SK ONLY)

Ref. No.	Part No.	Description
14-SW151	ES-369603	SW SLIDE HSW0896-010 2-02-02N
14-P151	EJ-373170	SOCKET HXC1525-01-010 21P

FINAL ASSEMBLY BLOCK



15. FINAL ASSEMBLY BLOCK

Ref. No.	Part No.	Description
15-1A	BD-V1070A130A	PANEL FRONT BLK VS-245S
15-1A-B	BD-V1070A130C	PANEL FRONT BLK VS-245S-B
15-1B	BD-V1070A130B	PANEL FRONT BLK VS-240SK
15-1B-B	BD-V1070A130D	PANEL FRONT BLK VS-240SK-B
15-1C-B	BD-V1070A130F	PANEL FRONT BLK VS-244S-B
15-1D-B	BD-V1070Q130H	PANEL FRONT BLK VS-247S-B
15-1E-B	BD-V1070Q130J	PANEL FRONT BLK VS-248S-B
15-2	SK-364643	KNOB SEARCH SLIDE
15-3	SP-369714A-B	COVER UPPER
15-3-B	SP-369714B-B	COVER UPPER-B
15-4	ZS-362378	PLX BID30X10STL CMT
15-5	ZS-361104	PLX BID30X08STL NI3
15-5-B	ZS-361105	PLX BID30X08STL BNI
15-6	SA-353927B	FOOT(2)
15-7	AV-348415	CORD SECAM

16. REMOTE CONTROL UNIT RC-V240

Ref. No.	Part No.	Description
16-1	AV-370604	REMOCON RC-V240A-F
16-1-B	AV-370605	REMOCON RC-V240A-FB
16-IC1	EI-714630	IC UPD6102G
16-D1	ED-705414	D LED SE303A INFRARED
16-D2	ED-307572	D SILICON H 1SS131
16-D3	ED-307572	D SILICON H 1SS131
16-Q1	ET-709703	TR 2SC2673 P.Q
16-MF1	EI-720002	OSC CE CSB455P 455KHZ
16-2	SC-720003	COVER BATTERY RC-V270/V240-S
16-2-B	SC-720004	COVER BATTERY RC-V270/V240-B

SYMBOL FOR COLOR VARIATION

NON : SILVER
B : BLACK

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BA-V1069A330M	6-2B	ED-344280	7-D408	EF-623103	10-F2	EJ-373170	13-P4
BA-V1070A300A	6-1A	ED-344280	7-D409	EH-360339	43	EJ-373170	14-P151
BA-V1070A300B	6-1B	ED-344280	7-D410	EH-360339	7-FL551	EL-367396	5-IN902
BA-V1071A400D	6-3	ED-344280	7-D411	EH-360340-A	42	EL-367397	5-IN901
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BD-V1070A130F	15-1C-B	ED-344280	8-D2	EH-364067	8-FL102	EO-345865	7-L201
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BL-B360342-A	3-24	ED-344280	8-D8	EH-367043	44	EO-345881	7-L551
BL-B360350	2	ED-344280	8-D101	EH-367043	8-FL101	EO-345881	7-L552
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ABBREVIATIONS (VIDEO)

ABBREVIATION	EXPLANATION	ABBREVIATION	EXPLANATION
AC	Alternating Current	LM STP	Loading Motor STOP
ACC	Auto Color Control	LP	Long Play
A/C	Audio and Control	LPF	Low Pass Filter
ADJ	ADJust(ment)	LSW	Loading SWitch
AFC	Auto Frequency Control	ME-SECAM	Middle East SECAM
AFT	Auto Fine Tuning	MI-COM	MIcro COMputer
AGC	Auto Gain Control	MM	Mono-stayble Multi
AH(P)	Audio Head (Play Back)	MRS	Motor ReverSe
AH(R)	Audio Head (Record)	NG	Noise Gate
AL	ALI	NON-LIN	NON-LINear
AL	ALways	N.T.S.C.	National Television System Committee
ALC	Auto Level Control	O MUTE	Output MUTE
A-SW-P	Audio-SWitching-Pulse	OSC	OSCillator
A-MUTE	Audio-MUTE	PAL	Phase Alternation Line
AUT/MAN	AUTO/MANual	PB	Play Back
ANT	ANTenna	P-COM	Phase-COMparator
APC	Automatic Phase Control	PDN	Power Down
ASSY	ASSEMBLY	PG	Pulse Generator
BAL	BALance	PL, PLG	PLunger (PLunGer)
B/C	Buzz and Character	POS	POSition
B DOWN	Break DOWN	PRG	PRoGram
BGP	Burst Gate Pulse	P & S	Power supply & System control
BLK	BLack or BLock	PU	Pick Up (head, pulse)
BM	Balanced Modulator	PWR	POWer
BPF	Band Pass Filter	Q	Quality factor
BS	Band Select	RC	Rotary Control
BS (SB)	Brake Supply (Supply Brake)	REC	RECORD
BT (TB)	Brake Takeup (Takeup Brake)	REF	REFerence
BU	Back Up	REF-V	REFerence Vertical signal
B/W	Black and White	REG	REGulator
CCIR	Comité Consultatif International des Radio Communications	REV (REVW)	REView (REVieW)
CH (Ch.)	CHannel (Channel)	REW	REWind
CK	Color Killer	RFB	Radio Frequency Booster
CLK	CLock	RM	Reel Motor
CLP	CLIP	RM PWR	Reel Motor PoWER
CM	Capstan Motor	R-S SW	Record-Safety SWitch
CN	CoNnector	RST (RES)	ReSeT (RESet)
COMP	COMParator	RVS	ReVerSe
Comp	Comparison	S	Sensor, Shield
C or R	Cue or Review	SC	SimulCast
CR 1	Cue Review 1 (high)	S CLK	Serial CLock
CSW	Cassette SWitch	S & A	Servo & Audio
CTL	ConTroL	SECAM	Séquentiel à Memoire
CUE	CUE	SEP (SEPA)	SEParator (SEParator)
CW	Carrier Wave	SFP	Sync Front Pulse
DAC	Digital to Analog Converter	S & H	Sample and Hold
DC	Direct Current	SLP	Super Long Play
DEMODO	DEMODulator	SP	Standard Play
DET	DETECT (DETECTOR)	SPD	SPeed
DL	Delay Line	SRP	Supply Reel Pulse
DM	Drum Motor	SRV	SeRVo
DOC	Drop Out Compensator	SOW	Sync On Word
D-P-E	Drum-Phase-Error	STBY	STandBY
D-PG	Drum-Pulse Generator	SW	SWitch
D-TPZ	Drum-TraPeZoid	SW'NG	SWitchiNG
EE	Electronic to Electronic	SWP	SWitching Pulse
EF	Emitter Follower	SYNC	SYNChronize
EM	Eject Motor	T-AUDIO	Tuner AUDIO
EMPHA	EMPHAsis	TA-MUTE	Tuner Audio MUTE
ENVIN	ENVelope INput	TPZ (TRAPE)	TraPeZoid (TRAPEzoid)
ESW	Eject SWitch	TRK	TRackiNG
EQ	EQUALizer	TRP	Take up Reel Pulse
FE	Full track Erase	T/U	Take Up
FF	Flip-Flop	TV	TeLeVision
FG	Frequency Generator	UHF	Ultra High Frequency
Fig.	Figure	UNR	UNRegulated
FM	Frequency Modulation	V	Vertical
Fo	resonance Frequency	VCO	Voltage Controlled Oscillator
FREQ	FREQUENCY	VD	Vertical Drive
FSI	Field Start Inhibit	VF	Voltage for Fine tuning
GND	GrouND	VHF	Very High Frequency
H	Horizontal	VHS	Video Home System
HP	Horizontal (sync) Pulse	VID	VIDeo
HPF	High Pass Filter	VIDEO-J	VIDEO Judge
HT	HeaTer	VIF	Video Intermediate Frequency
IC	Integrated Circuit	VJ	Video Judge
ID	IDentification	VM	Voltage for Memory
IDL	IDLe (Voltage)	VOB	Video On Blank
INS	INSert	VOW	Video On Word
INV	INVerter	VP	Vertical (sync) Pulse
L-CTL	Lamp-ConTroL	VT	Voltage for Tuning
LED	Light Emitting Diode	WHT	WHITe
LDI	LoaD Input	2H	2 Hour (SP)
LM	Loading Motor	6H	6 Hour (SLP)

AKAI ELECTRIC CO., LTD.

12-14, 2-Chome, Higashi-Kojiya, Ohta-Ku, Tokyo, Japan
TEL Tokyo (742) 5111 CABLE: HIFIAKAI TOKYO TELEX: J26261

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MODEL **VS-240SK**

MODEL **VS-244/245S**

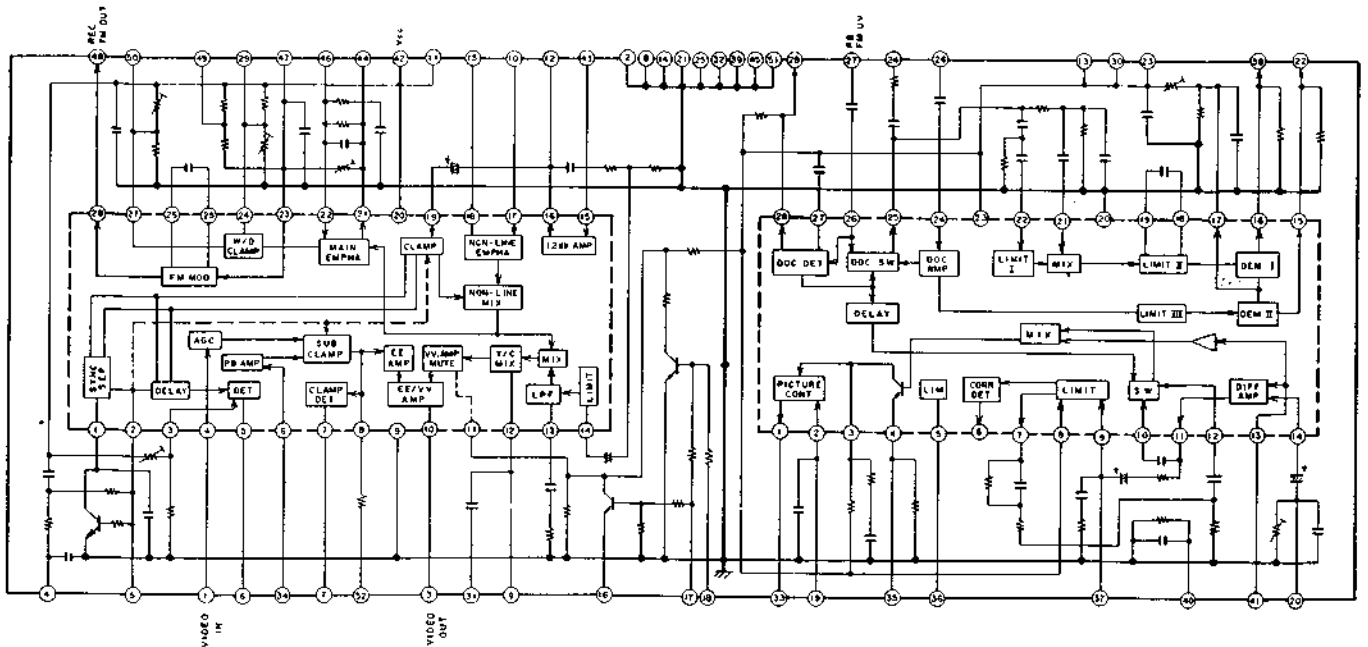
MODEL **VS-247/248S**

SCHEMATIC DIAGRAM AND PC BOARDS

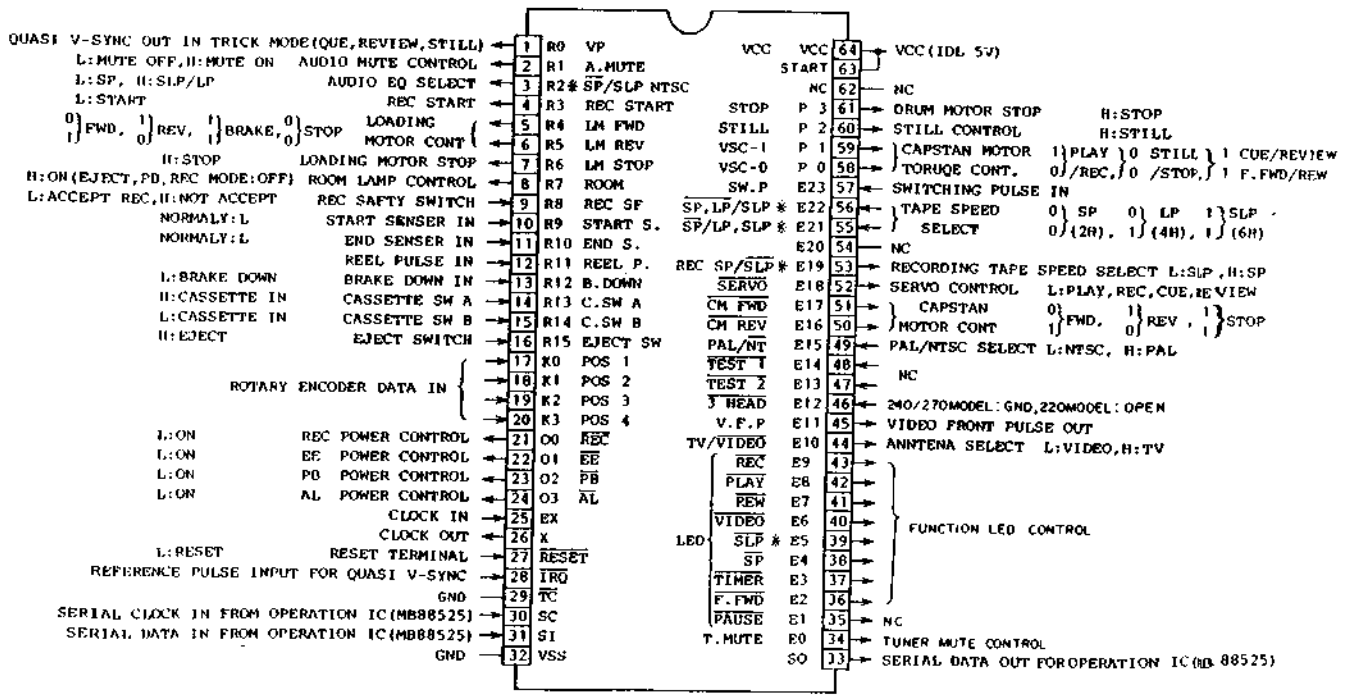
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HH3210P (VIDEO Y. SIGNAL PROCESSING IC)



MB88521-140M (SYSTEM CONTROL CPU)

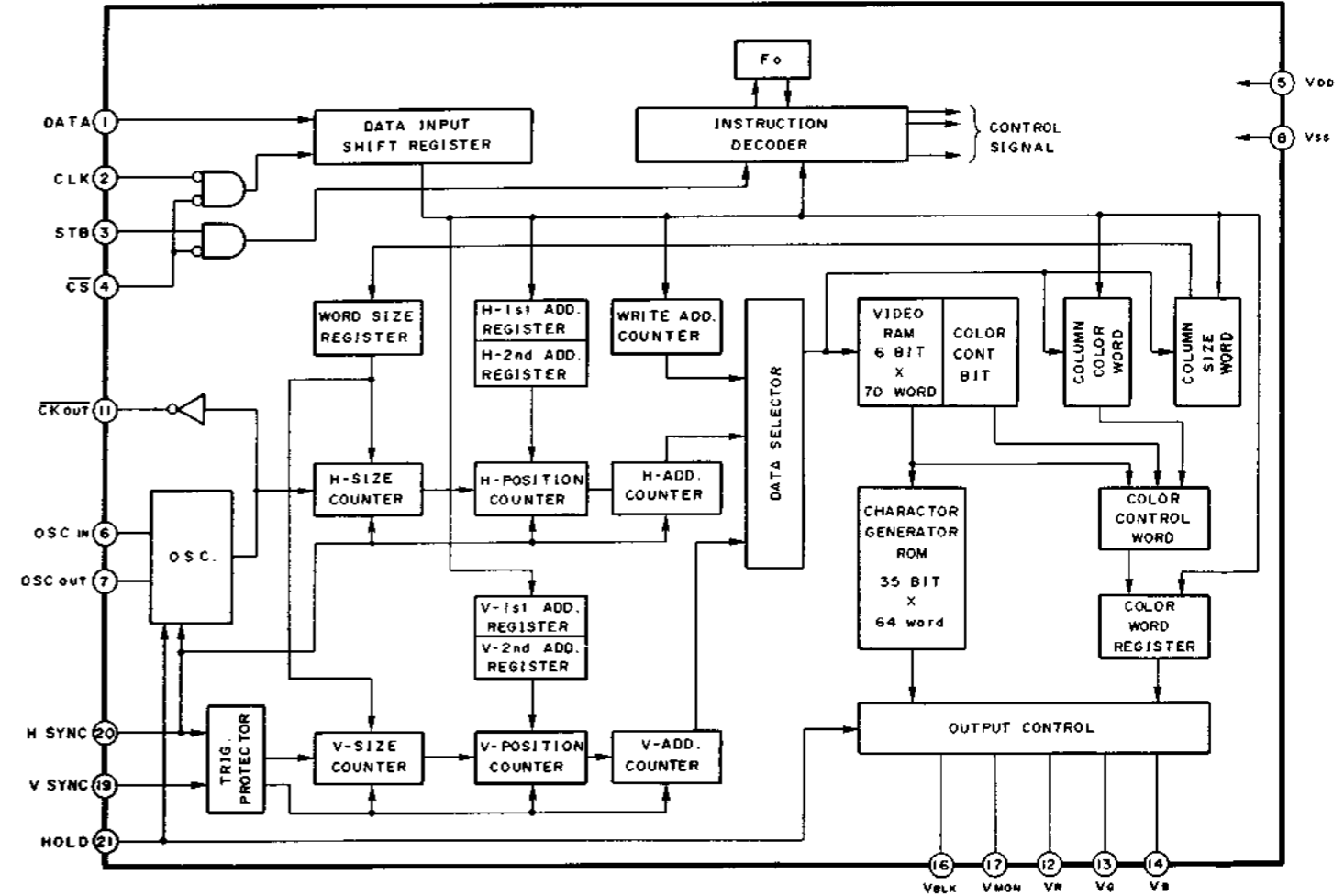


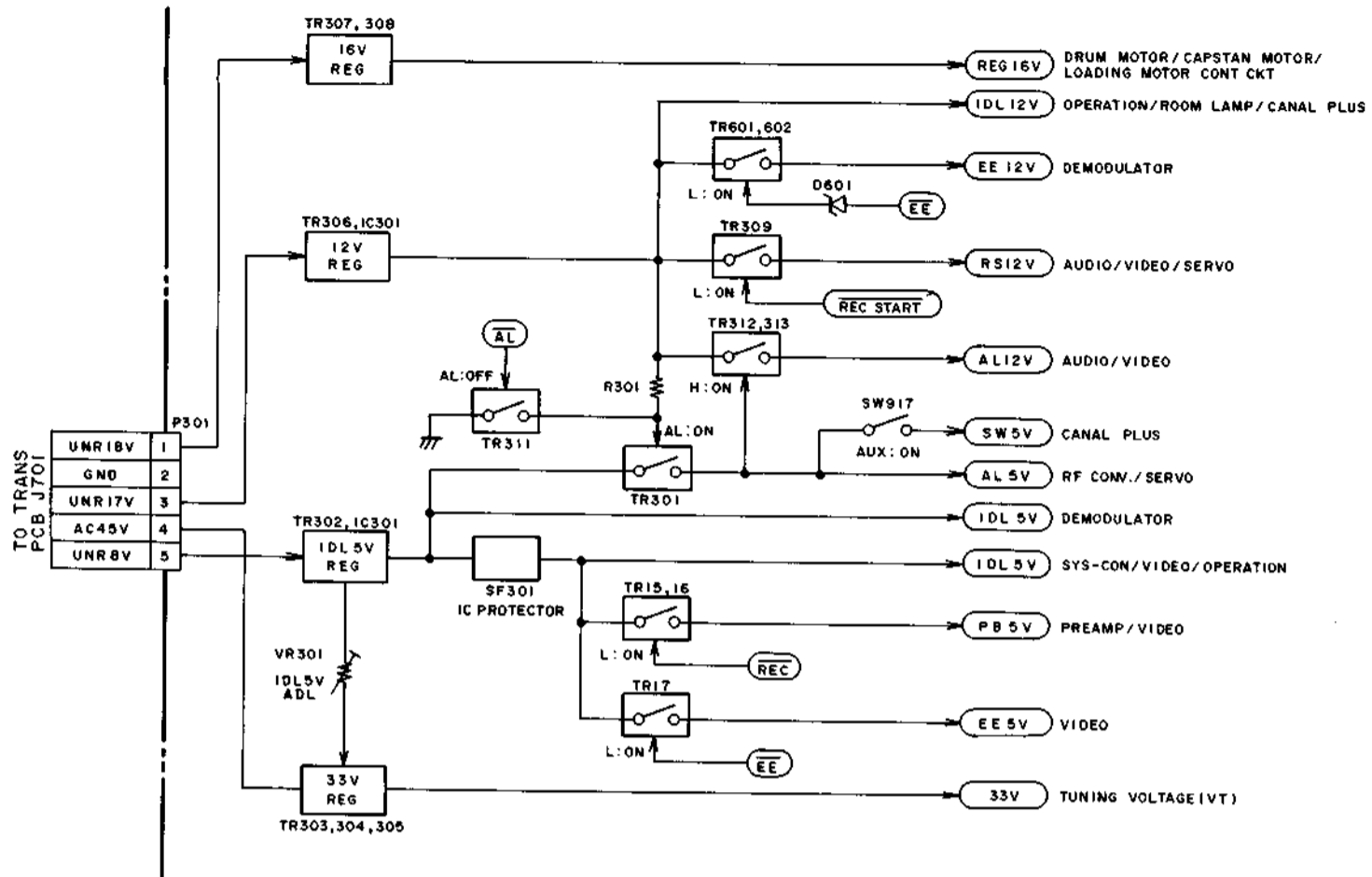
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MB88551-256N[OPERATION CPU (C·MOS 8K)]

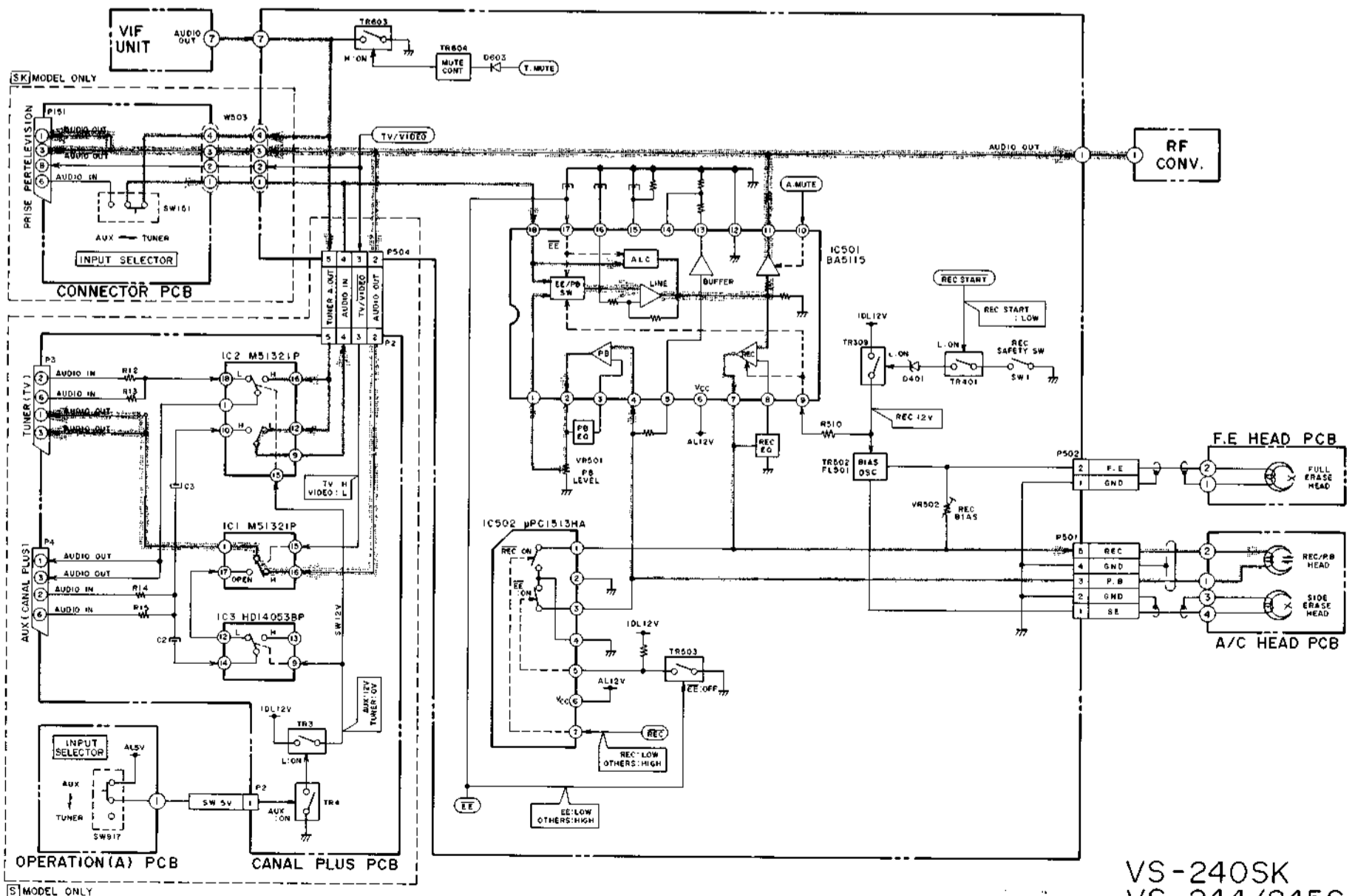
Pin No.	Symbol	Remarks
1.	SI/O	Serial data input from Syscon CPU
2.	SPM	Speed mode input L:SP, H:SP/SLP
3.	SDA	NC
4.	SW SLP	Speed selector input L:SLP, H:SP
5.	D10,I/04	Data IN/OUT, Connect D/A converter, NVRAM
6.	D11,I/03	
7.	D12,I/02	
8.	D13,I/01	
9.	OPEN	NC
10.	AVSS	A/D converter ground
11.	AVR-	A/D converter minus ref. voltage
12.	AVCC	A/D converter VCC
13.	A6,KOT2	NVRAM address output/ key scan pulse output
14.	A5,KOT3	
15.	A0,KOT0	
16.	A1 KOT1	
17.	A2	NVRAM address output
18.	A3	
19.	A4	
20.	A7	
21.	KIN3	Key scan input
22.	KIN2	
23.	KIN1	
24.	KIN0	
25.	VPS AUTO	NC
26.	RC	NVRAM Recall L:Recall, H:don't care
27.	MEMO 1	MEMO LED control L:Lit
28.	MEMO 2	
29.	PRESET	PRESET, BAND SELECT SLIDE switch input (low active)
30.	NORMAL	
31.	BAND 1	
32.	BAND 2	
33.	OPEN	NC
34.	VCC	+B
35.	DAVN	NC
36.	NC (EI)	NC
37.	SW KE1	Scan pulse output
38.	SW KE2	PAUSE LED control
39.	PAUSE	
40.	J	Tuner band out L:ON, H:OFF
41.	VR	
42.	VC	
43.	TUNER	Tuner ON/OFF control L:ON, H:OFF
44.	B/V	Black picture control L:VIDEO, H:Black picture
45.	AFC	Tuner AFC control L:ON, H:OFF
46.	T.MUTE	Tuner mute control L:OFF, H:ON
47.	DGT 1	7 Segment LED control
48.	DGT 2	
49.	NC	
50.	NC	
51.	SEG b	
52.	SEG g	
53.	SEG a	
54.	SEG d	
55.	SEG e	
56.	SEG c	
57.	SEG f	
58.	E23	NC
59.	EX	EXT X'tal terminal
60.	X	
61.	RESET	System reset input
62.	Y	Inverted oscillator output
63.	DATA	Control data output for IMS IC
64.	E25	NC
65.	CLK	Serial clock output
66.	IRU	Remote control input
67.	E28	NC
68.	START	Power down detector input L:Power down H:don't care
69.	E30	NC
70.	E31	NC
71.	VSS	Ground
72.	SCL	NC
73.	OPEN	NC
74.	SO/I	Serial data output, connect syscon CPU
75.	SC	Clock signal output connect syscon CPU
76.	LDI	D/A converter control clock output
77.	ST	NVRAM store control L:Store, H:don't care
78.	STB PD	IMS IC data store output
79.	CS RB	NVRAM chip select L:Select, H:don't care
80.	WE	NVRAM write enable L:Write, H:Read

μPD6105C-002 (CHARACTOR GENERATOR)

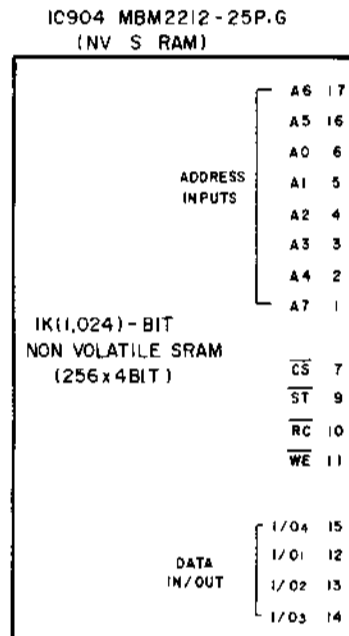
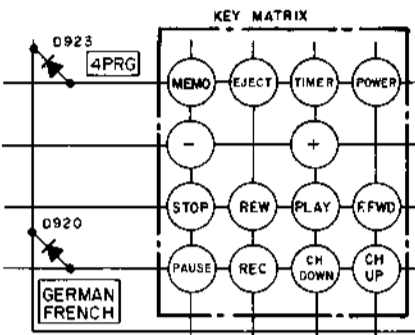
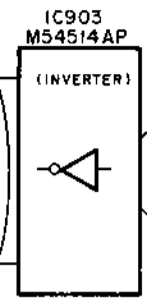
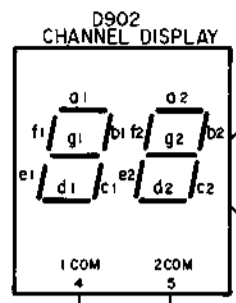




VS-240SK
 VS-244/245S
 VS-247/248S
 POWER
 BLOCK DIAGRAM
 NO.5-1 870501A



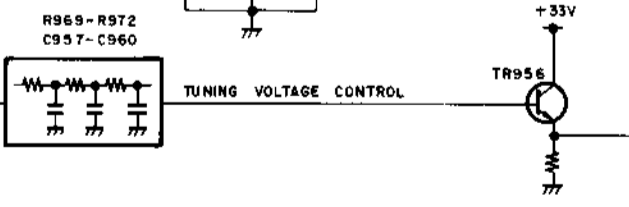
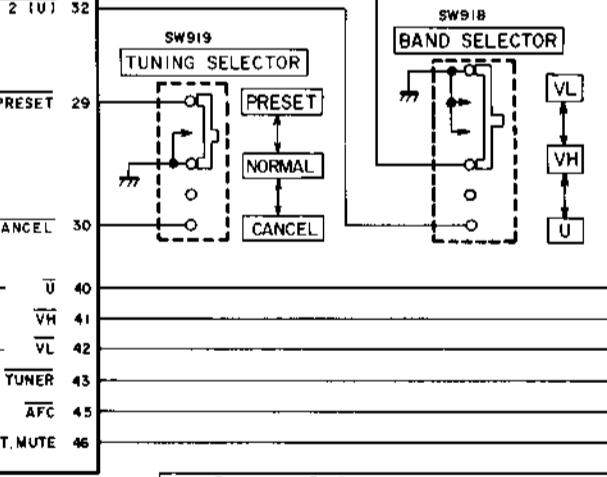
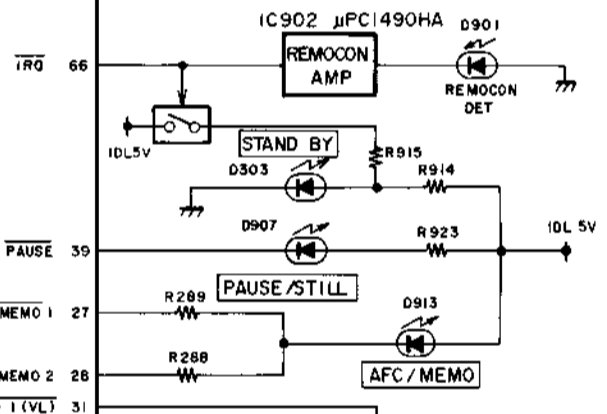
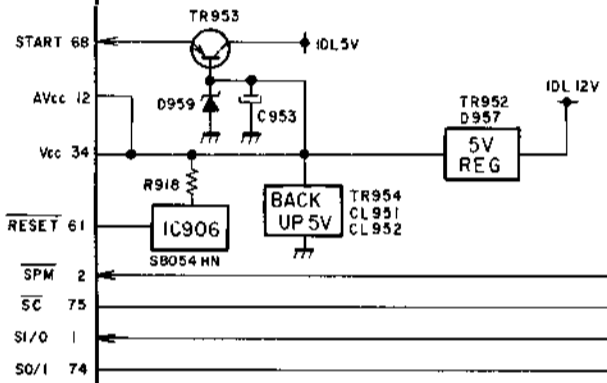
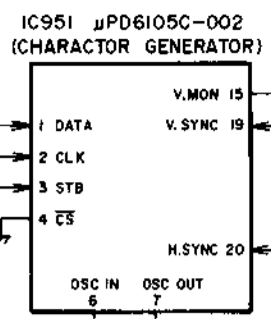
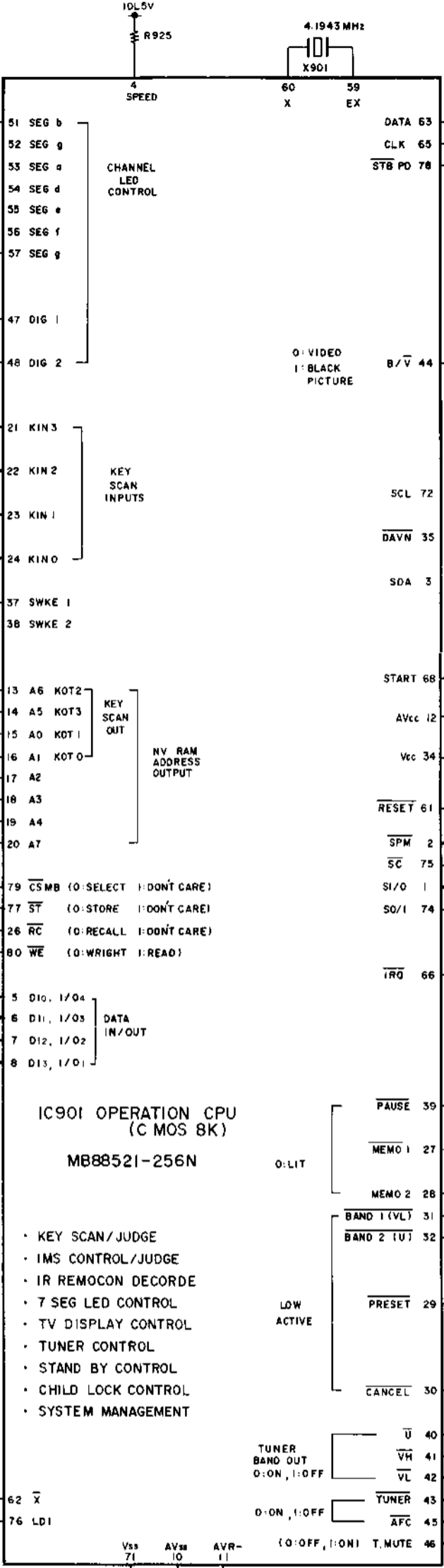
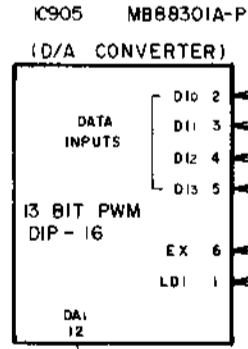
VS-240SK
 VS-244/245S
 VS-247/248S
 AUDIO
 BLOCK DIAGRAM
 NO.5-2 870502A



FUNCTION CHART OF IC904

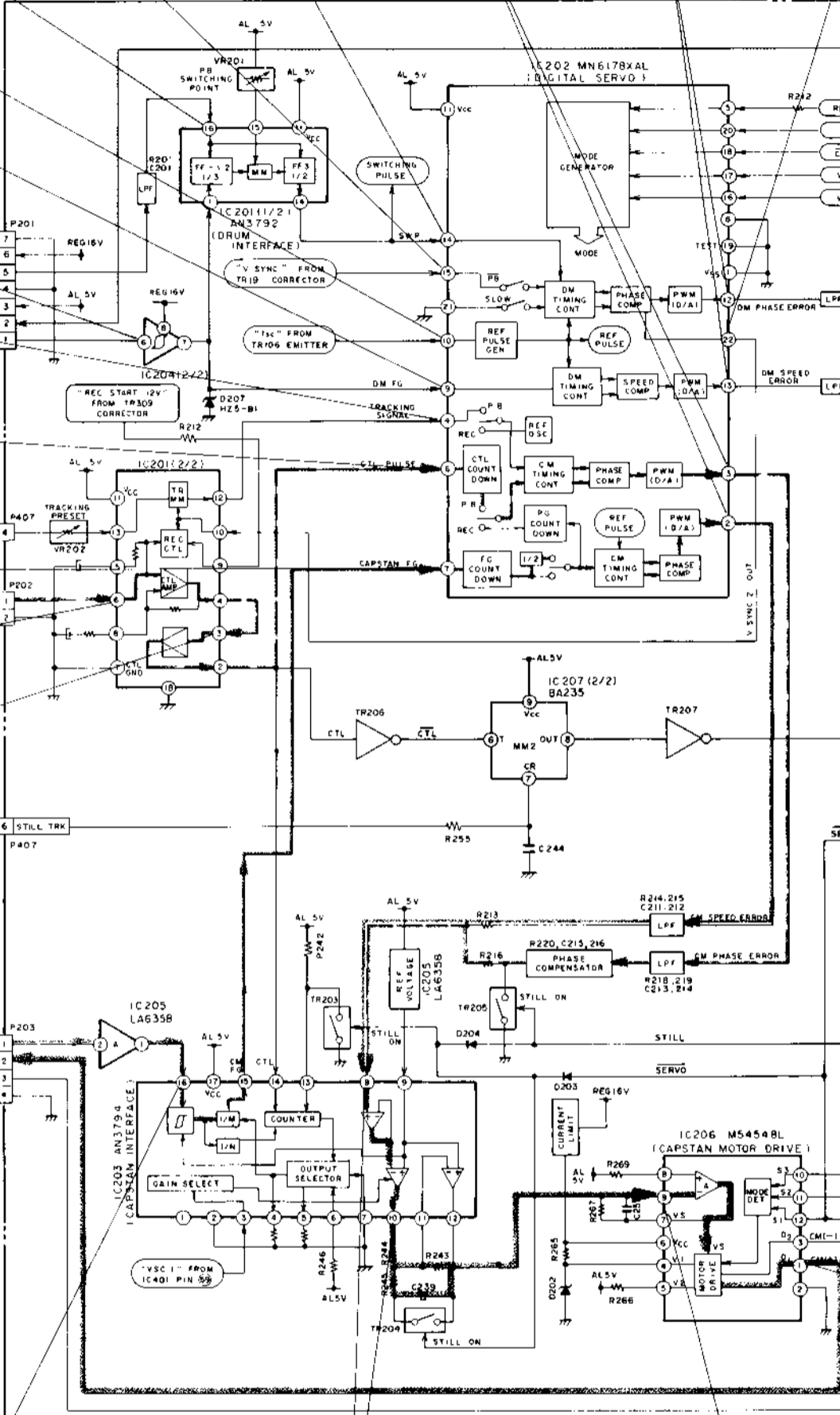
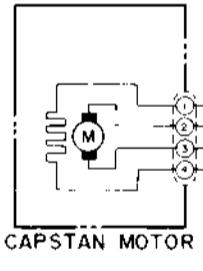
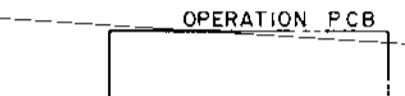
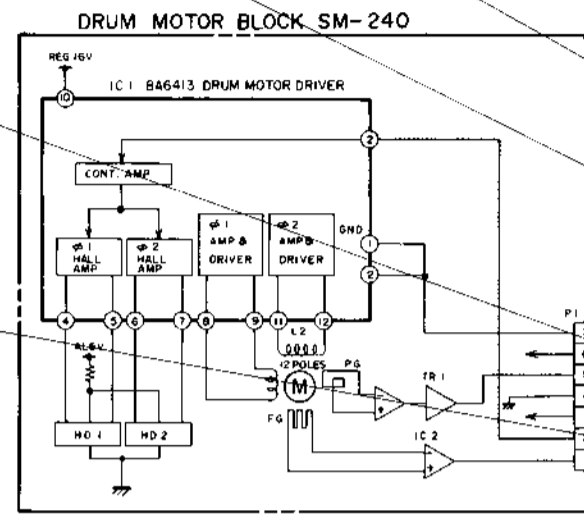
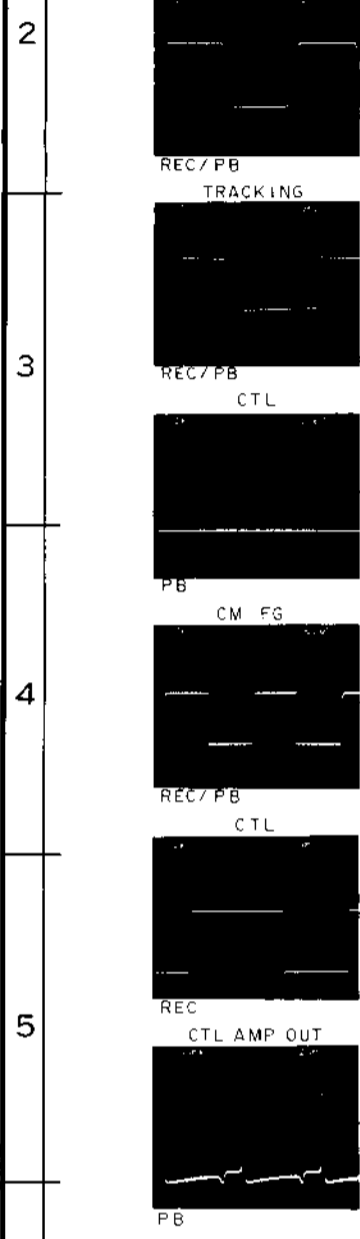
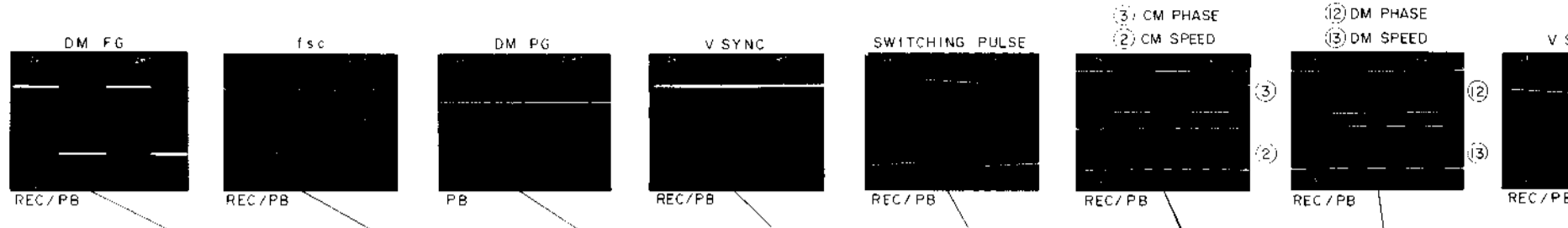
CS	WE	RC	ST	MODE	DATA IN / OUT
H	*	H	H	NO FUNCTION	HIGH IMPEDANCE
L	H	H	H	NVRAM READ	IN
L	L	H	H	NVRAM WRITHT	OUT
*	H	L	H	RECALL	HIGH IMPEDANCE
H	*	L	H	RECALL	HIGH IMPEDANCE
*	H	H	L (L _F)	STORE	HIGH IMPEDANCE
H	*	H	L (L _F)	STORE	HIGH IMPEDANCE

* = DON'T CARE

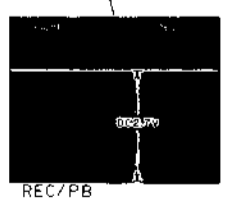
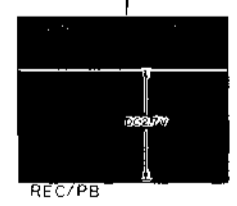
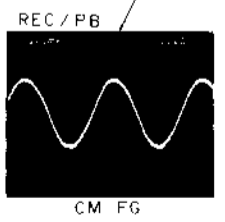


OPERATION (A/B) PCB

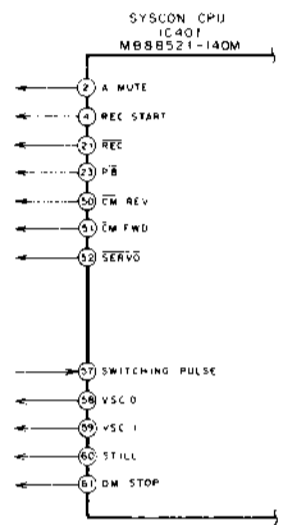
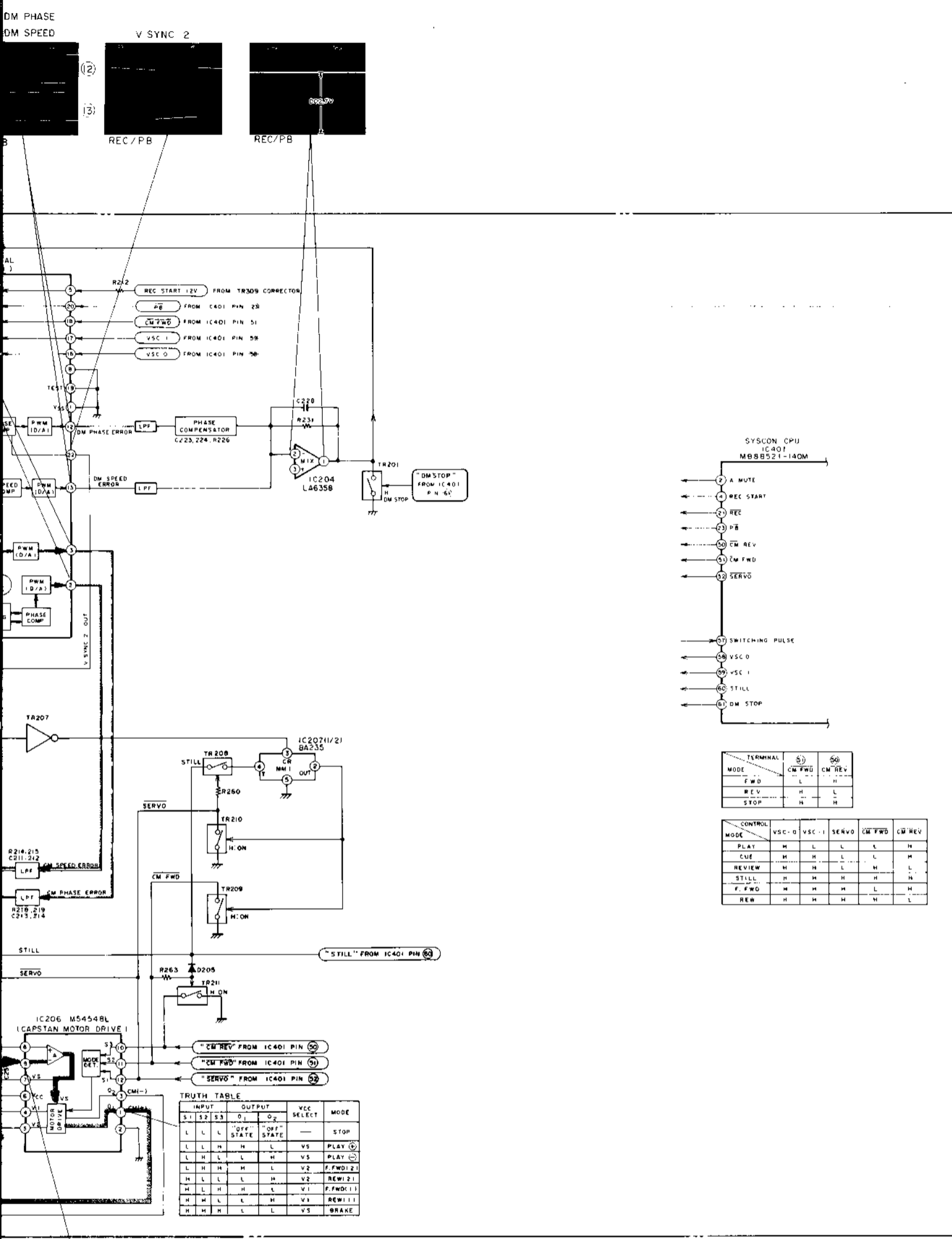
A B C D E F



- DRUM MOTOR SPEED
- DRUM MOTOR PHASE
- DRUM MOTOR CONTROL
- CAPSTAN MOTOR SPEED
- CAPSTAN MOTOR PHASE
- CAPSTAN MOTOR CONTROL

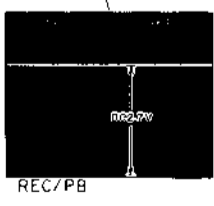


A B C D E F



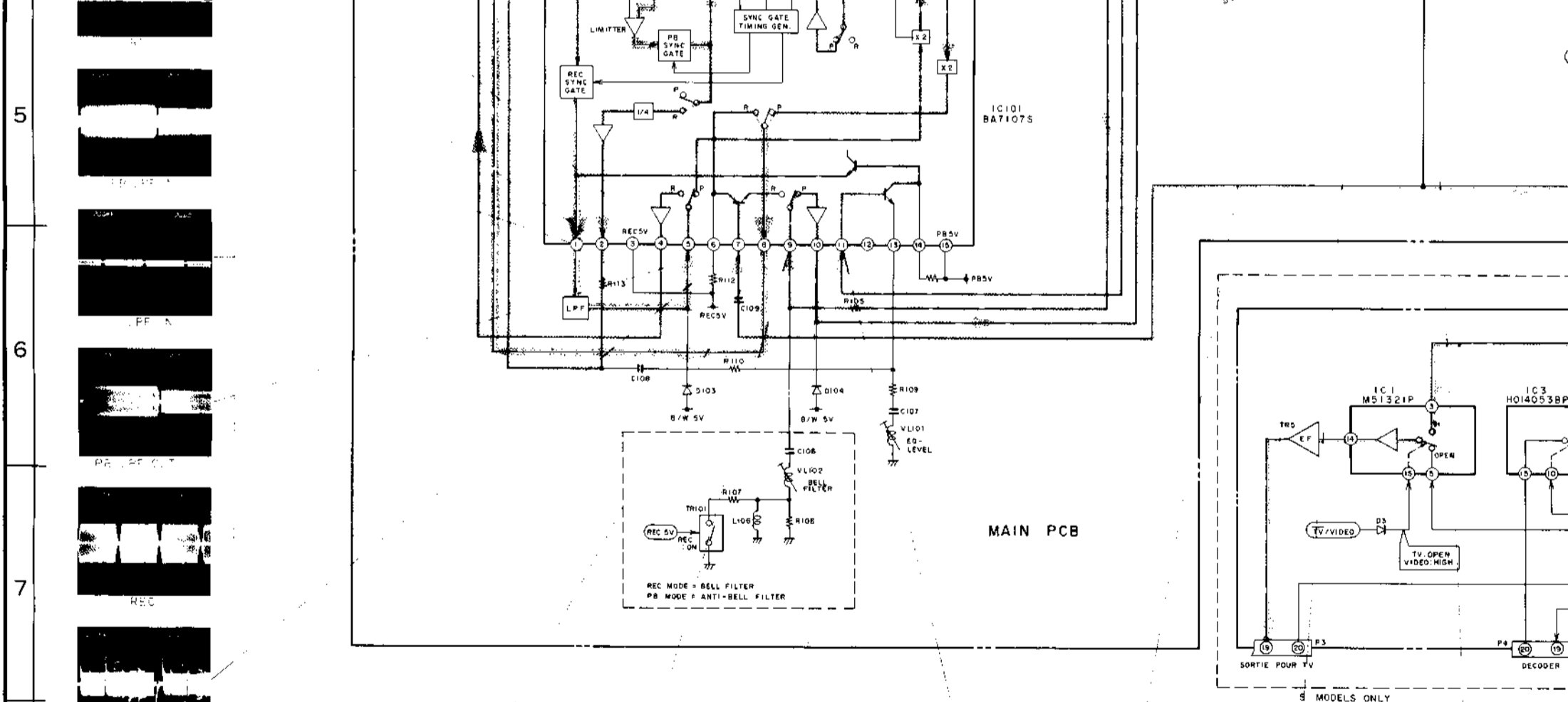
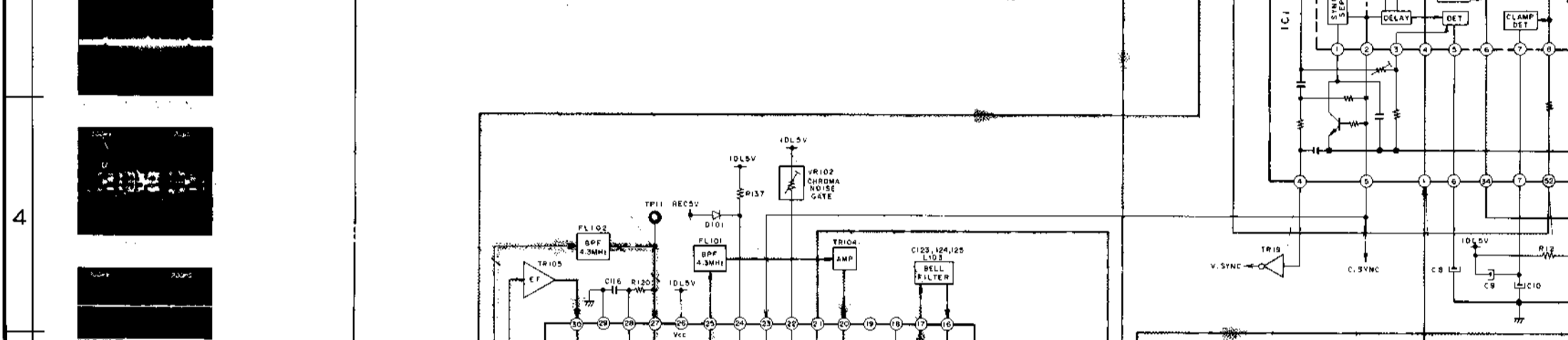
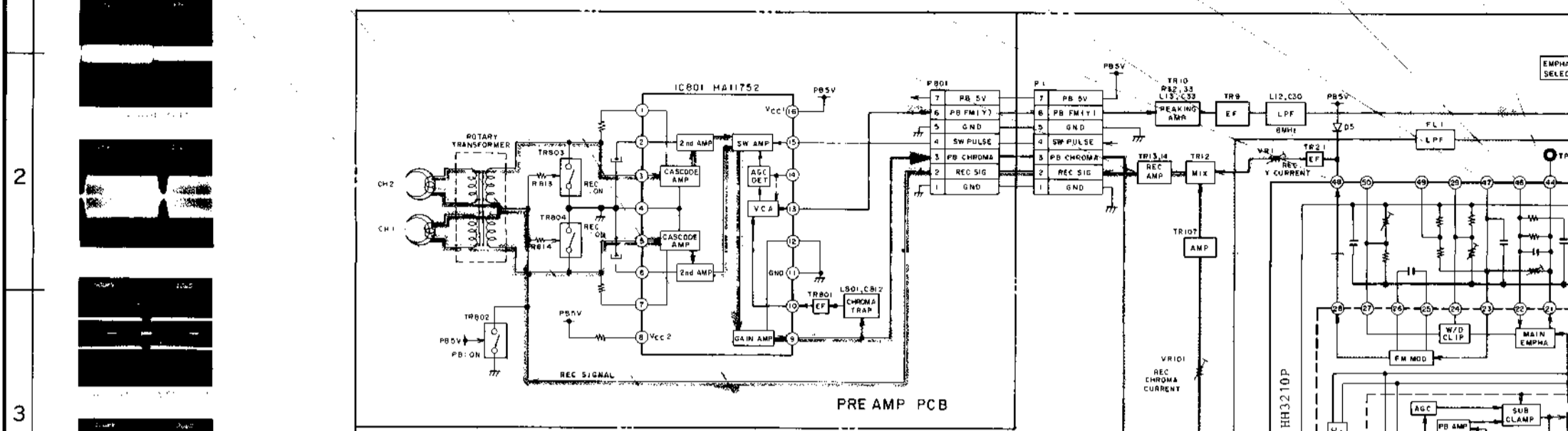
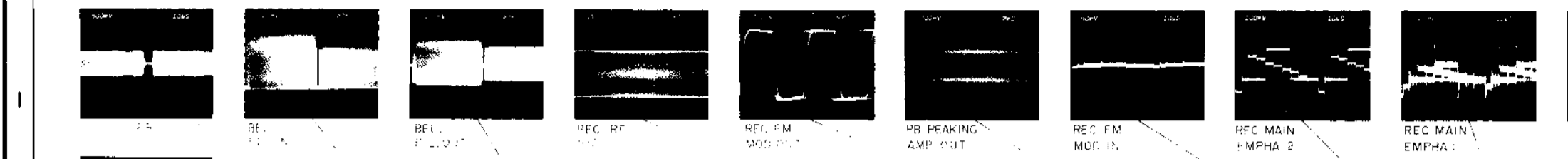
TERMINAL	51	50
MODE	CM FWD	CM REV
FWD	L	H
REV	H	L
STOP	H	H

CONTROL	VSC 0	VSC 1	SERVO	CM FWD	CM REV
PLAY	H	L	L	L	H
CUE	H	H	L	L	H
REVIEW	H	H	L	H	L
STILL	H	H	H	H	H
F. FWD	H	H	H	L	H
REW	H	H	H	H	L



VS-240SK
VS-244/245S
VS-247/248S
SERVO BLOCK DIAGRAM
NO. 5 - 4 870503A

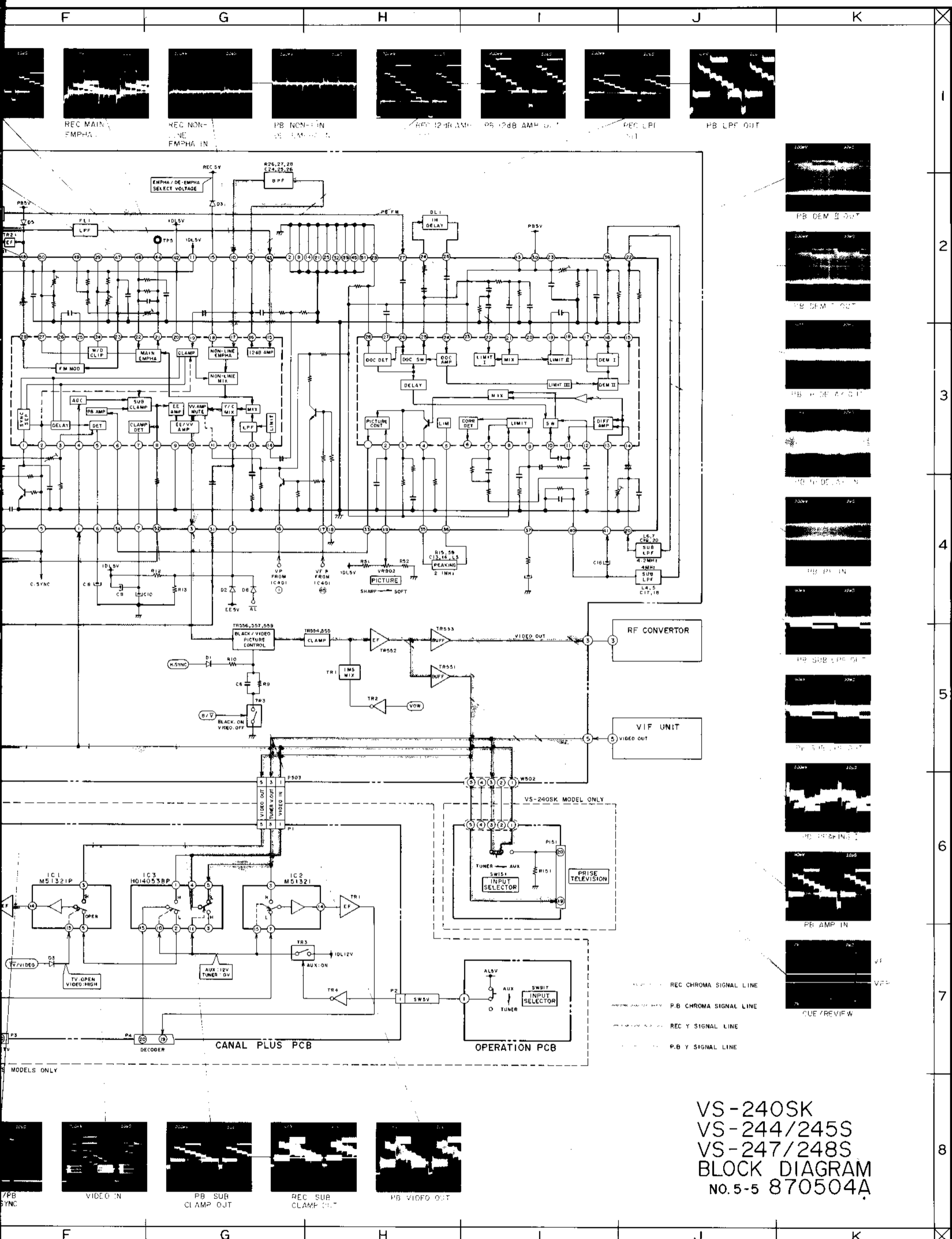
A B C D E F



8 MODELS ONLY



A B C D E F



REC MAIN EMPHA

REC NON-LINE EMPHA IN

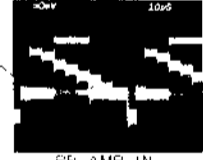
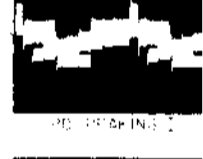
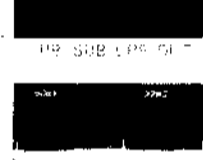
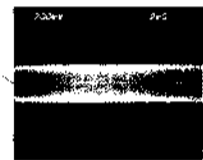
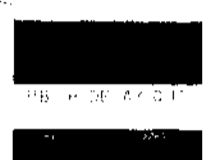
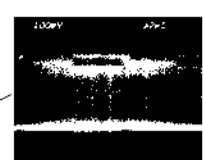
PB NON-LINE EMPHA IN

REC 1248 AMP

PB 1248 AMP OUT

REC LPI

PB LPF OUT



- REC CHROMA SIGNAL LINE
- P.B CHROMA SIGNAL LINE
- REC Y SIGNAL LINE
- P.B Y SIGNAL LINE

VS-240SK
 VS-244/245S
 VS-247/248S
 BLOCK DIAGRAM
 NO.5-5 870504A

PB SYNC

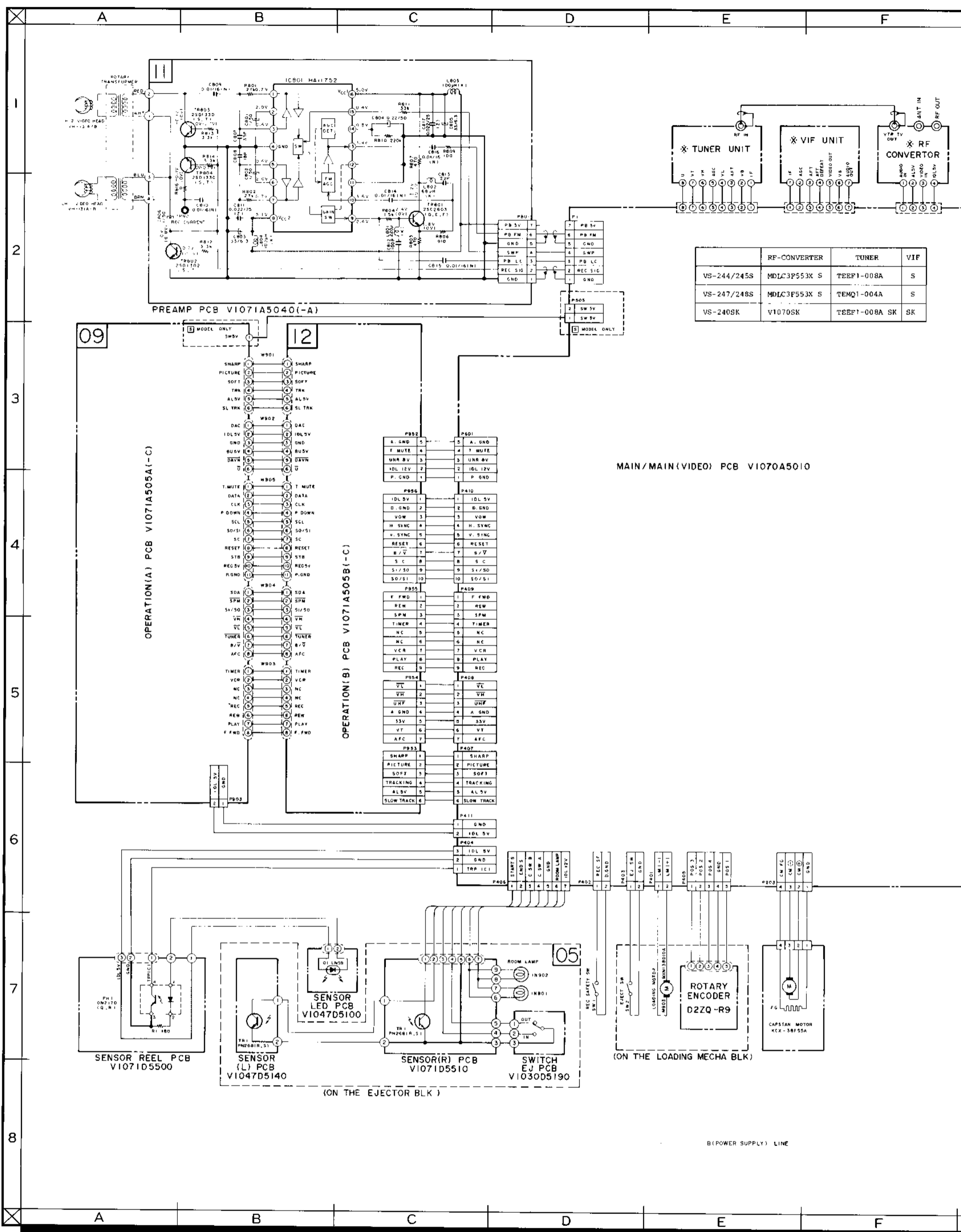
VIDEO IN

PB SUB CLAMP OUT

REC SUB CLAMP OUT

PB VIDEO OUT

1
2
3
4
5
6
7
8



	RF-CONVERTER	TUNER	VIF
VS-244/245S	MDLC3P553X S	TEEF1-008A	S
VS-247/248S	MDLC3P553X S	TEMQ1-004A	S
VS-240SK	V1070SK	TEEF1-008A SK	SK

Model	RF-CONVERTER	TUNER	VIF
VS-244/245S	MDLC3P553X S	TEEF1-008A	S
VS-247/248S	MDLC3P553X S	TEMQ1-004A	S
VS-240SK	V1070SK	TEEF1-008A SK	SK

Model	RF-CONVERTER	TUNER	VIF
VS-244/245S	MDLC3P553X S	TEEF1-008A	S
VS-247/248S	MDLC3P553X S	TEMQ1-004A	S
VS-240SK	V1070SK	TEEF1-008A SK	SK

Model	RF-CONVERTER	TUNER	VIF
VS-244/245S	MDLC3P553X S	TEEF1-008A	S
VS-247/248S	MDLC3P553X S	TEMQ1-004A	S
VS-240SK	V1070SK	TEEF1-008A SK	SK

Model	RF-CONVERTER	TUNER	VIF
VS-244/245S	MDLC3P553X S	TEEF1-008A	S
VS-247/248S	MDLC3P553X S	TEMQ1-004A	S
VS-240SK	V1070SK	TEEF1-008A SK	SK

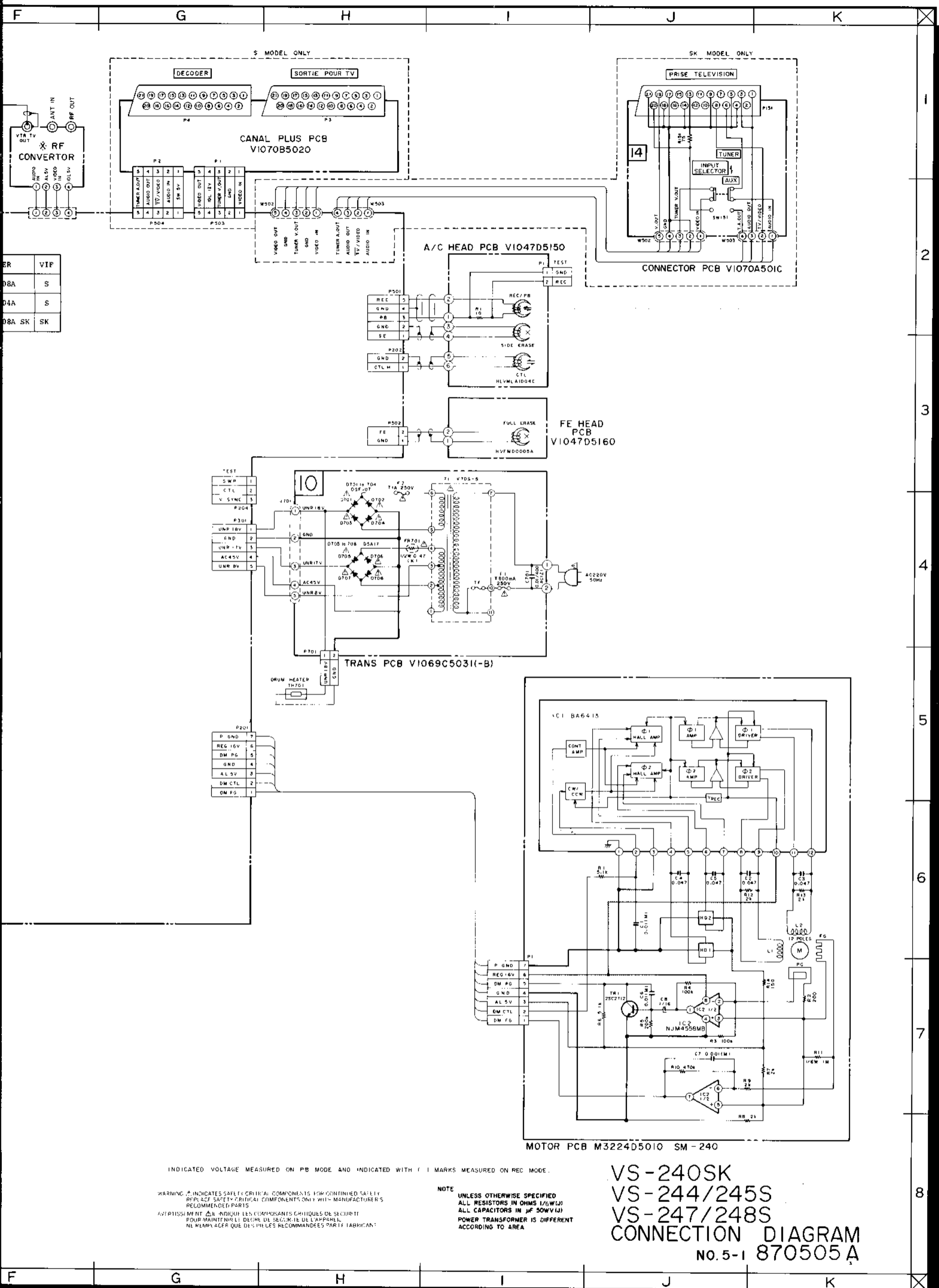
Model	RF-CONVERTER	TUNER	VIF
VS-244/245S	MDLC3P553X S	TEEF1-008A	S
VS-247/248S	MDLC3P553X S	TEMQ1-004A	S
VS-240SK	V1070SK	TEEF1-008A SK	SK

Model	RF-CONVERTER	TUNER	VIF
VS-244/245S	MDLC3P553X S	TEEF1-008A	S
VS-247/248S	MDLC3P553X S	TEMQ1-004A	S
VS-240SK	V1070SK	TEEF1-008A SK	SK

Model	RF-CONVERTER	TUNER	VIF
VS-244/245S	MDLC3P553X S	TEEF1-008A	S
VS-247/248S	MDLC3P553X S	TEMQ1-004A	S
VS-240SK	V1070SK	TEEF1-008A SK	SK

Model	RF-CONVERTER	TUNER	VIF
VS-244/245S	MDLC3P553X S	TEEF1-008A	S
VS-247/248S	MDLC3P553X S	TEMQ1-004A	S
VS-240SK	V1070SK	TEEF1-008A SK	SK

B (POWER SUPPLY) LINE



ER	VIP
D8A	S
D4A	S
D8A SK	SK

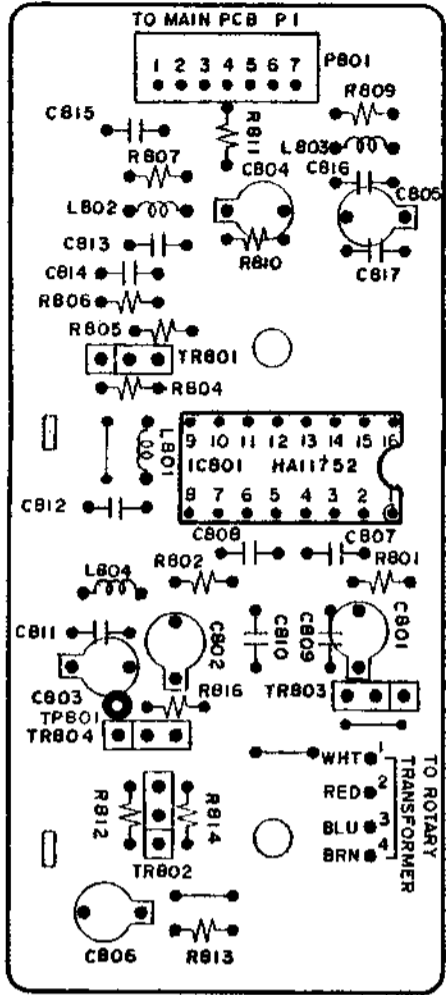
INDICATED VOLTAGE MEASURED ON PB MODE AND INDICATED WITH () MARKS MEASURED ON REC MODE.

WARNING: INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.
 AVERTISSEMENT: ΔA INDIQUE LES COMPOSANTS CRITIQUES DE SECURITE POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL. NE REMPLACER QUE DES PIÈLES RECOMMANDÉES PAR LE FABRICANT.

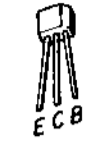
NOTE: UNLESS OTHERWISE SPECIFIED ALL RESISTORS IN OHMS (Ω/G/W/J) ALL CAPACITORS IN μF (50V/V/J) POWER TRANSFORMER IS DIFFERENT ACCORDING TO AREA

VS-240SK
 VS-244/245S
 VS-247/248S
CONNECTION DIAGRAM
 No.5-1 870505A

1
2
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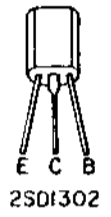
PRE AMP PCB
VI07IA5040(-A)



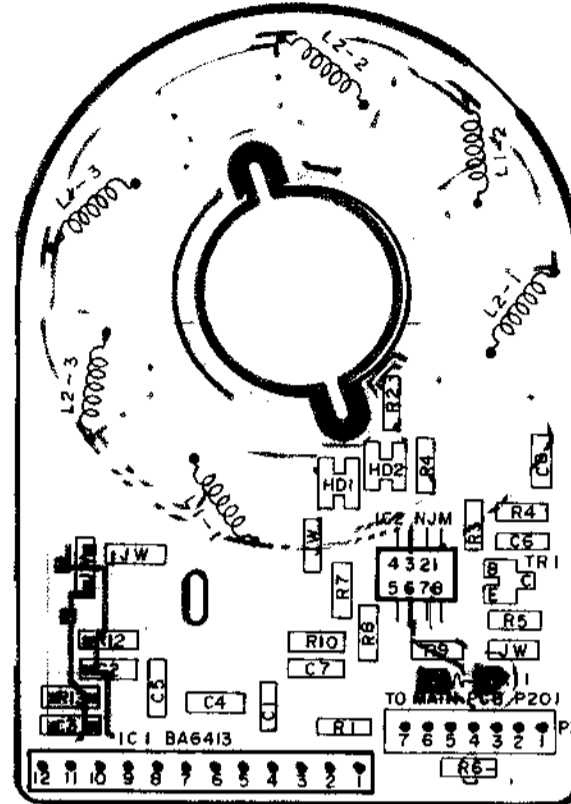
2SC2603



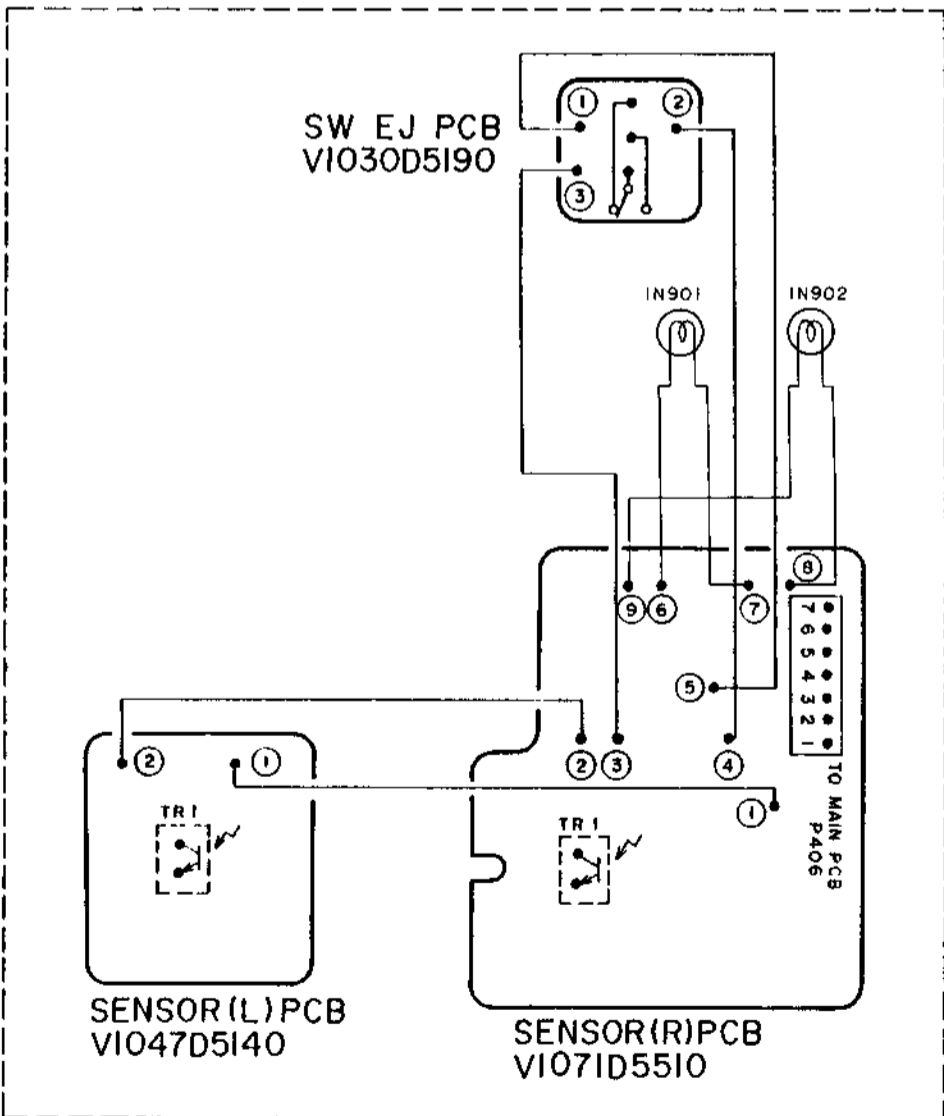
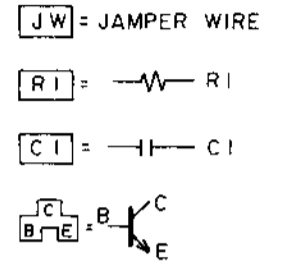
2SD1330



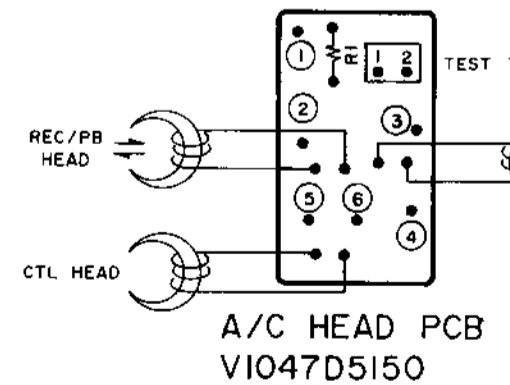
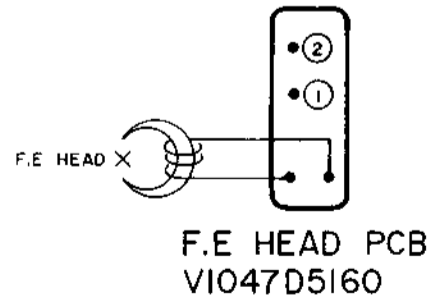
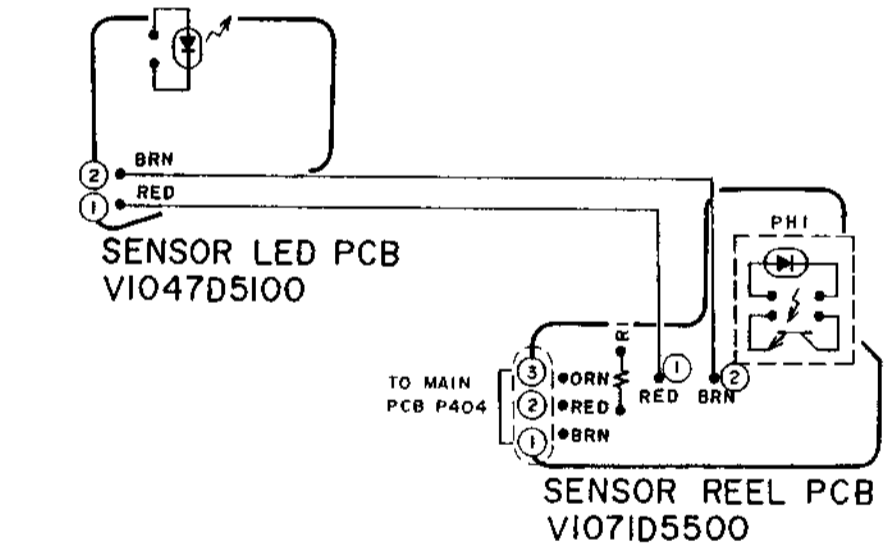
2SD1302



MOTOR PCB M3224D5010 (SM-240)

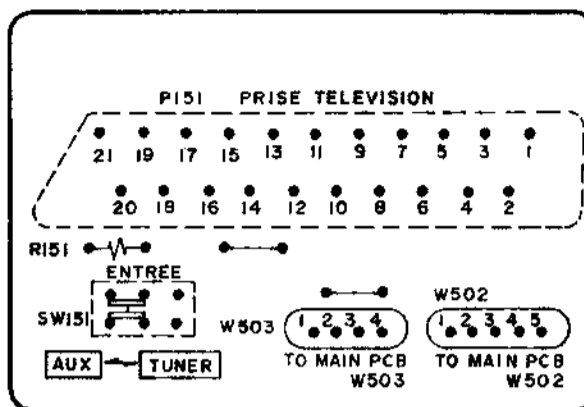
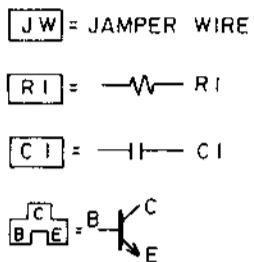
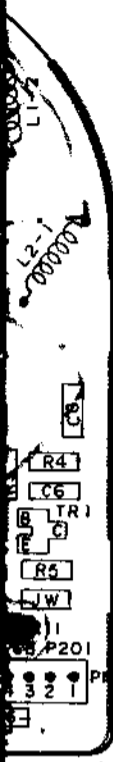


EJECTOR BLOCK



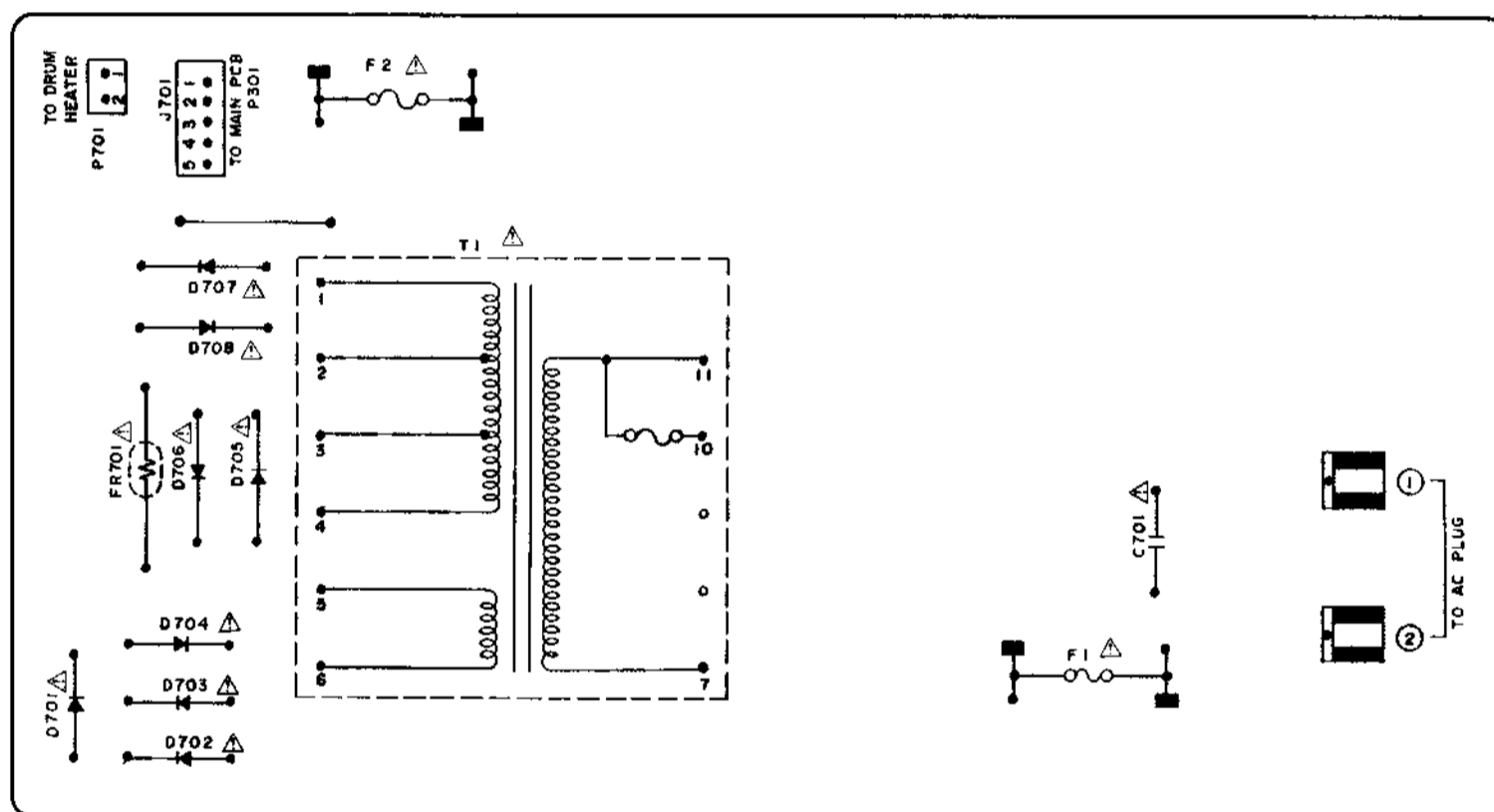
TO DRUM

0701A

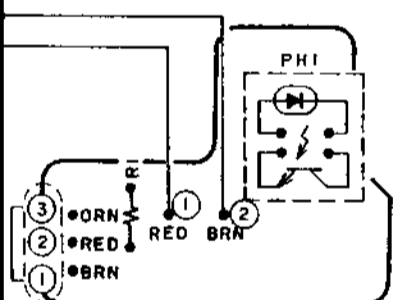


CONNECTOR PCB VI070A501C
(SK MODEL ONLY)

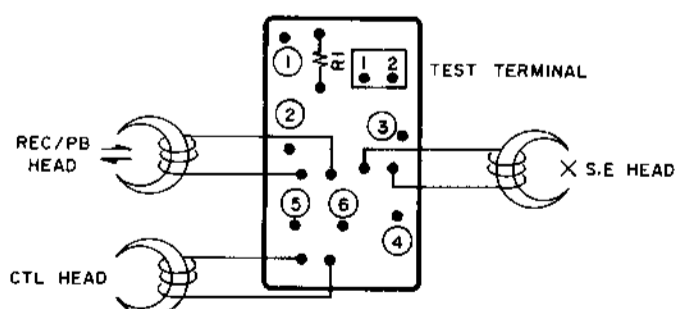
SM-240)



TRANS PCB VI069C5031(-B)



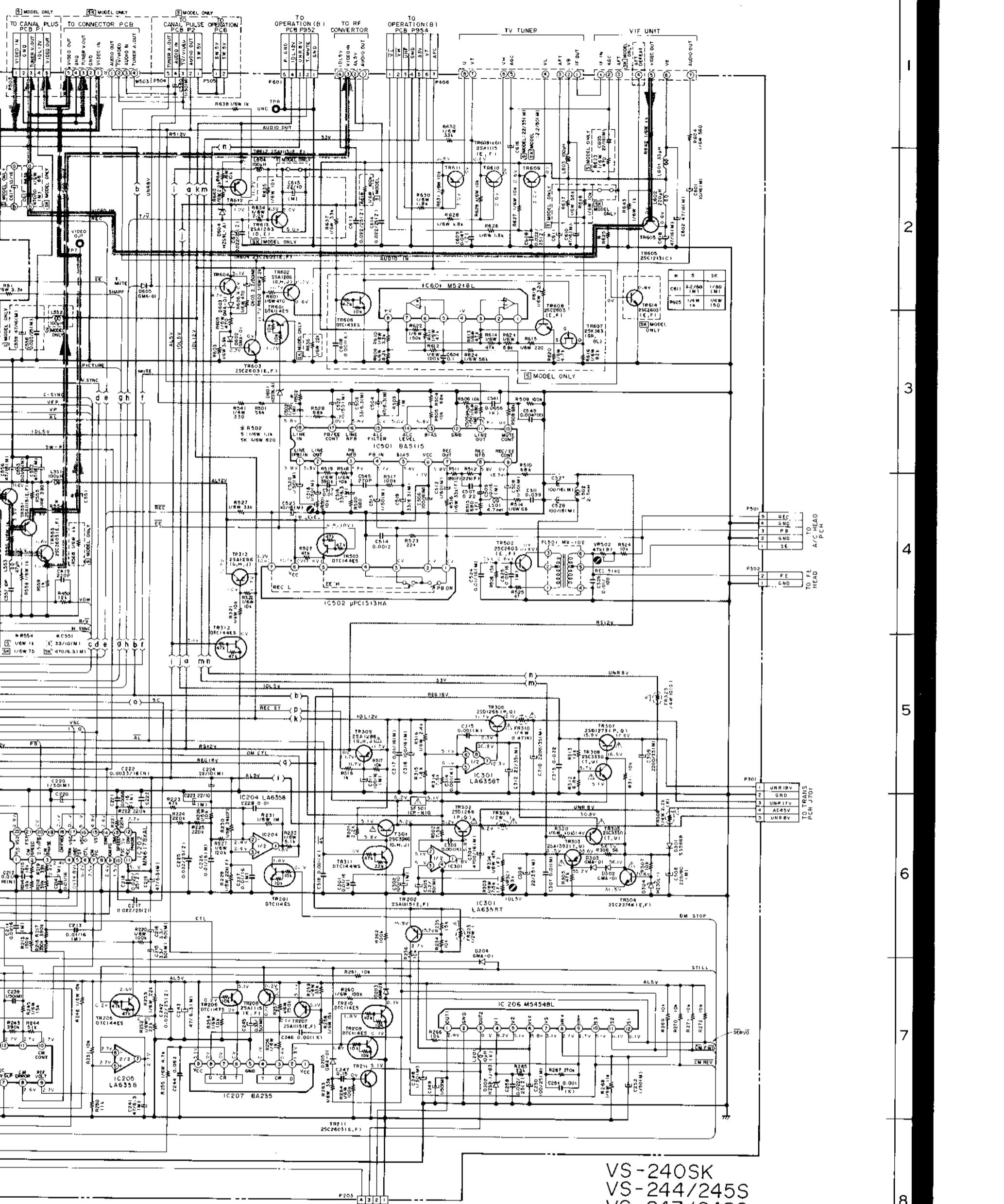
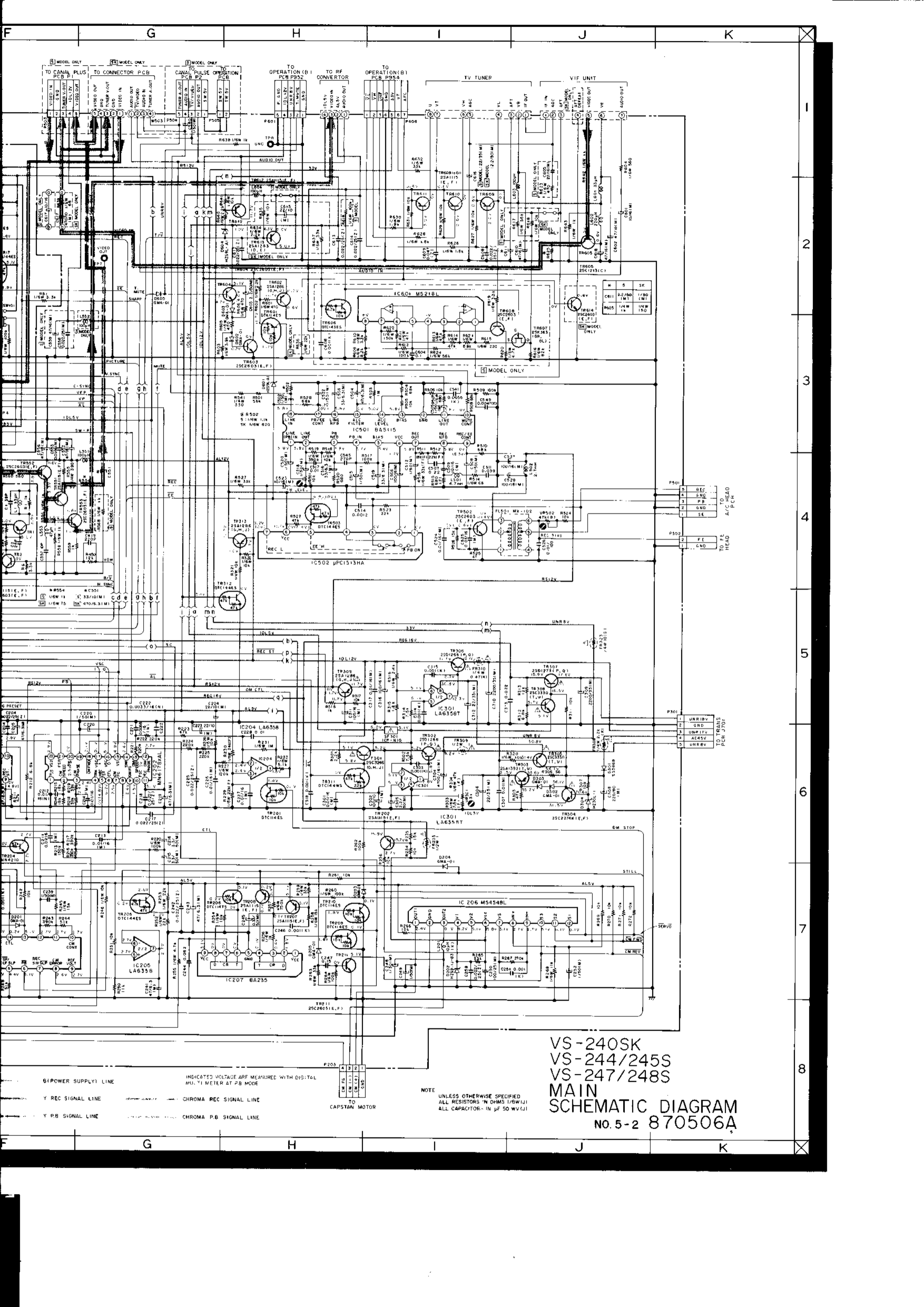
SENSOR REEL PCB
VI071D5500



A/C HEAD PCB
VI047D5150

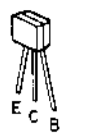
WARNING: INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT: INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.



VS-240SK
VS-244/245S
VS-247/248S
MAIN
SCHEMATIC DIAGRAM
NO. 5-2 870506A

6 POWER SUPPLY LINE
Y REC SIGNAL LINE
Y PB SIGNAL LINE
INDICATED VOLTAGE ARE MEASURED WITH DIGITAL M.U. METER AT PB MODE
CHROMA REC SIGNAL LINE
CHROMA P.B SIGNAL LINE
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/8W 1/1
ALL CAPACITORS IN PF 50 WV 1/1



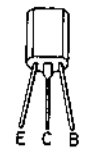
DTA144ES
DTC114ES
DTC114TS
DTC143ES
DTC144ES
DTC144WS



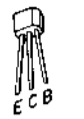
UN4119
UN4210



2SK363



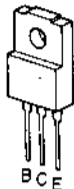
2SA1286
2SC3246



2SA1115
2SC2603
2SC3330



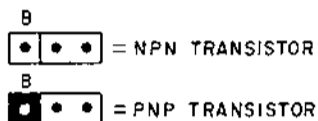
2SA1392
2SC1213
2SC2274K



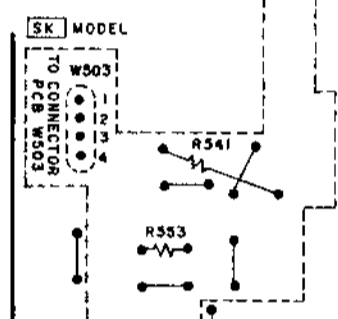
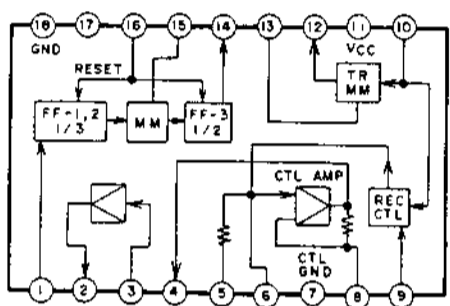
2SD1266
2SD1273

WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

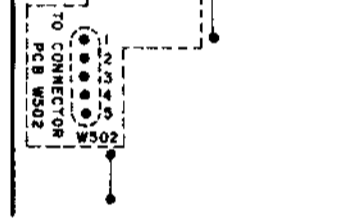
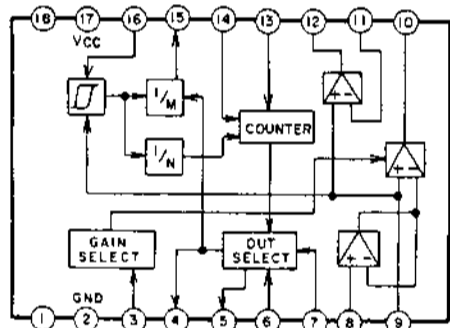
AVERTISSEMENT: Δ IL INDIQUE LES COMPOSANTS CRITIQUES DE SECURITE POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL. NE REMPLACER QUE DES PIECES RECOMMANDEES PAR LE FABRICANT.



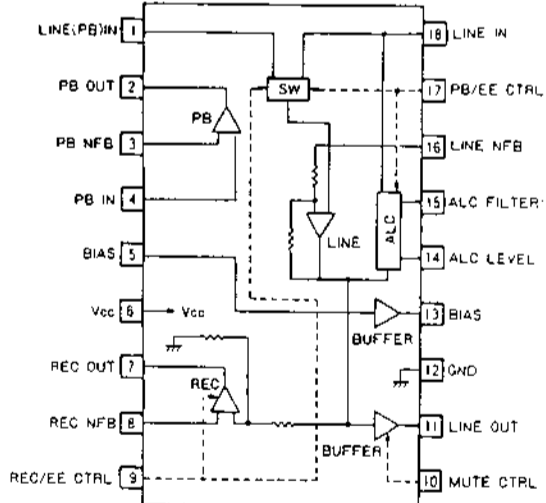
AN3792 (DRUM SERVO INTERFACE IC)



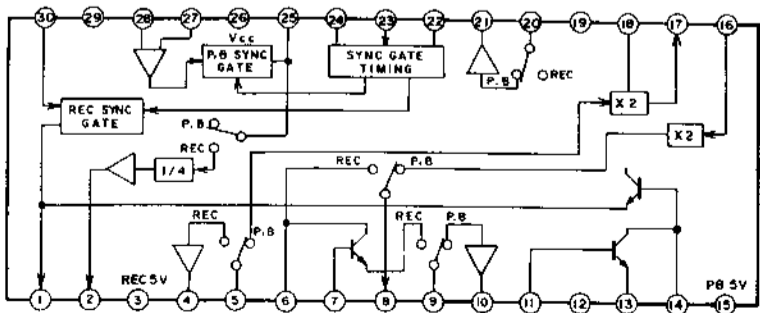
AN3794 (CAPSTAN SERVO INTERFACE IC)



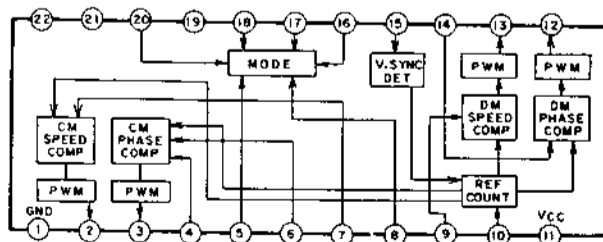
BA5115 (SWITCHLESS REC/PB AMPLIFIER)



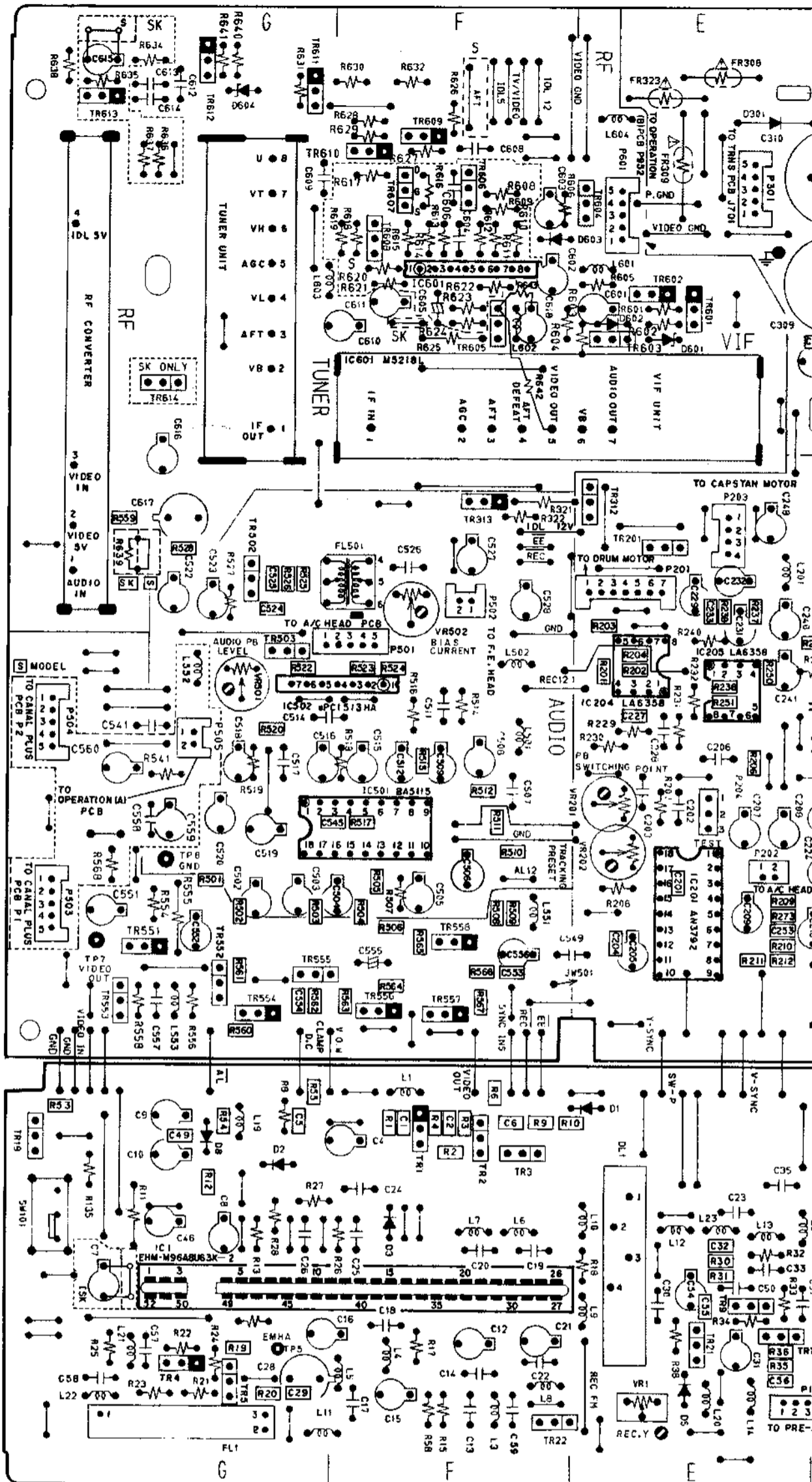
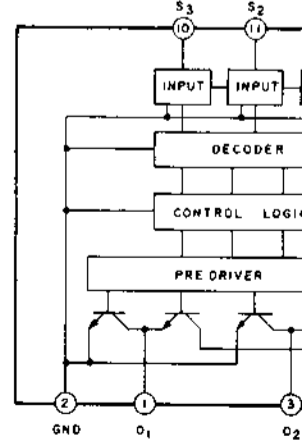
BA7107S (CHROMA SIGNAL PROCESSING IC)



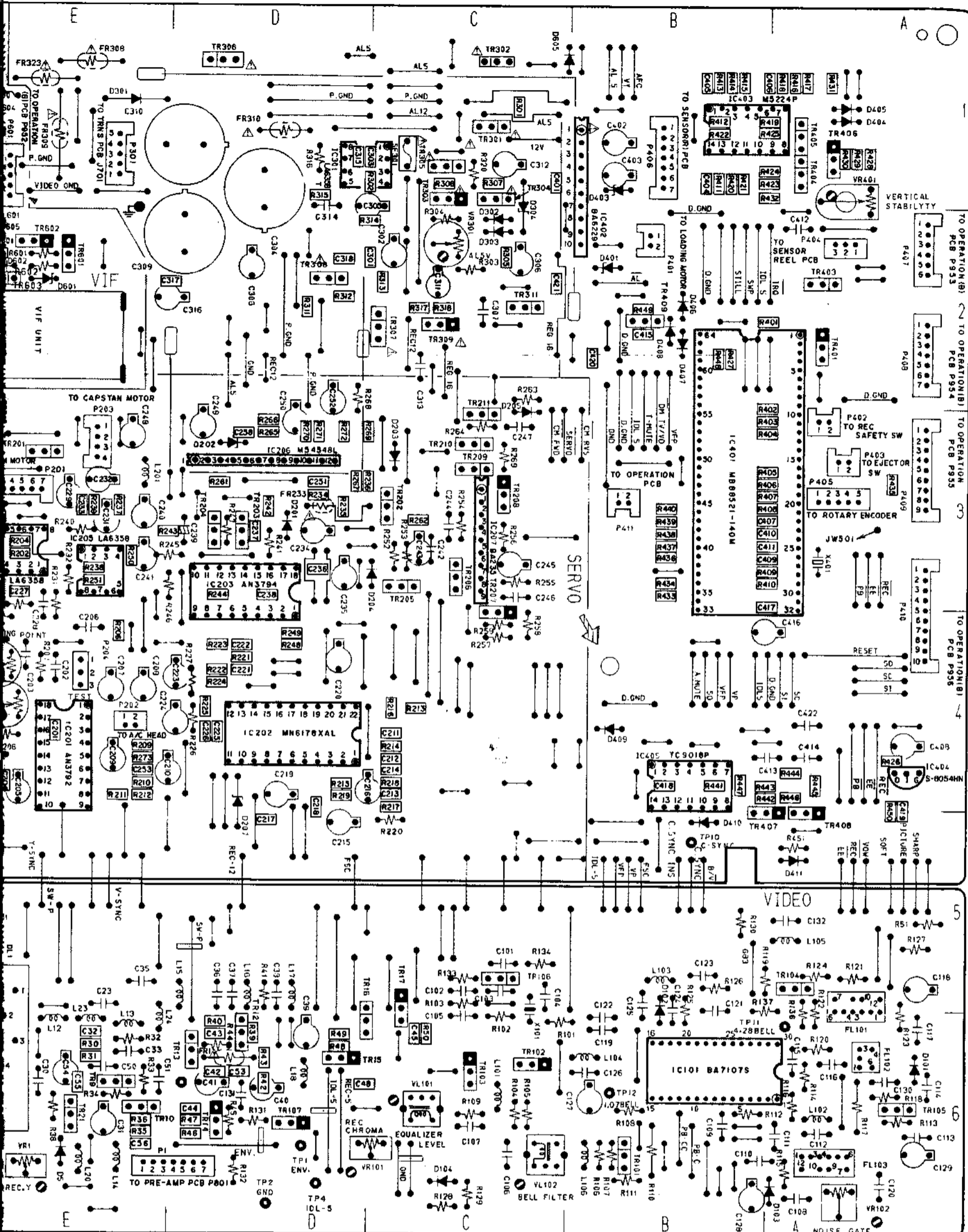
MN6178XAL (DIGITAL SERVO IC)



M54548L (CAPSTAN DI)



MAIN (VIDEO) PCB V1070A501B

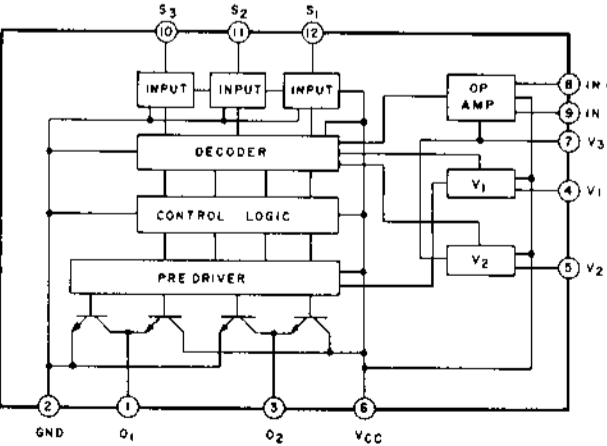


- IC
 IC1 FG6
 IC101 AB6
 IC201 E4
 IC202 D4
 IC203 D3, 4
 IC204 E3
 IC205 E3
 IC206 D3
 IC207 C3
 IC301 CD1
 IC401 AB3
 IC402 B1, 2
 IC403 AB1
 IC404 A4
 IC405 B4
 IC501 FG4
 IC502 FG3
 IC601 F2

- TRANSISTOR
 TR1 F5
 TR2 F5
 TR3 F5
 TR4 G6
 TR5 G6
 TR9 E6
 TR10 E6
 TR12 D6
 TR13 D6
 TR14 D6
 TR15 D6
 TR16 CD5, 6
 TR17 C5, 6
 TR19 G5
 TR21 E6
 TR22 EF6
 TR101 B6
 TR102 C6
 TR103 C6
 TR104 A5
 TR105 A6
 TR106 C5
 TR107 D6
 TR201 E3
 TR202 C3
 TR203 D3
 TR204 D3
 TR205 C3
 TR206 C3
 TR207 C4
 TR208 C3
 TR209 C3
 TR210 C3
 TR211 C3
 TR301 C1
 TR302 C1
 TR303 C1
 TR304 C1
 TR305 C1
 TR306 D1
 TR307 D2
 TR308 C2
 TR309 C2
 TR311 C2
 TR312 E2, 3
 TR313 F3
 TR401 A2
 TR403 A2
 TR404 A1
 TR405 A1
 TR406 A1
 TR407 AB4, 5
 TR408 A4, 5
 TR409 B2
 TR502 G3
 TR503 G3
 TR551 G4
 TR552 G4, 5
 TR553 G5
 TR554 G5
 TR555 FG4, 5
 TR556 F5
 TR557 F5
 TR558 F4
 TR601 E2
 TR602 E2
 TR603 E2
 TR604 E1
 TR605 F2
 TR606 F1
 TR607 F1, 2
 TR608 F1
 TR610 F1
 TR611 G1
 TR612 G1
 TR613 G1
 TR614 G2

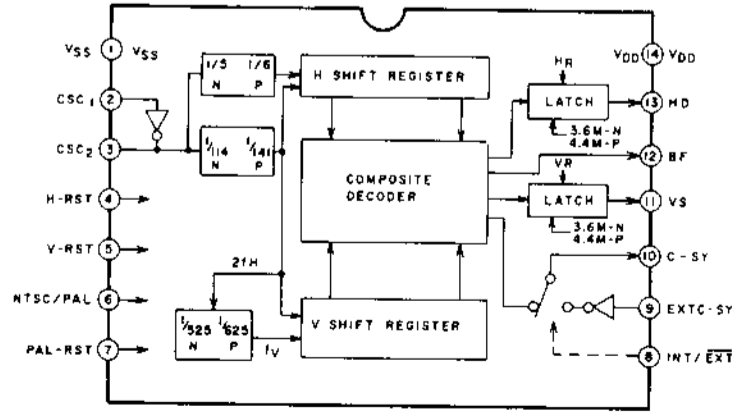
- CONNECTOR
 P1 DE6
 P201 E3
 P202 E4
 P203 E3
 P204 E4
 P301 E1
 P401 B2
 P402 A3
 P403 A3
 P404 A2
 P405 A3
 P406 B1
 P407 A2
 P408 A2
 P409 A3
 P410 A3, 4
 P411 B3
 P501 FG3
 P502 F3
 P503 G4
 P504 G3, 4
 P505 G3, 4
 P601 E1
 W502 G4
 W503 G3, 4

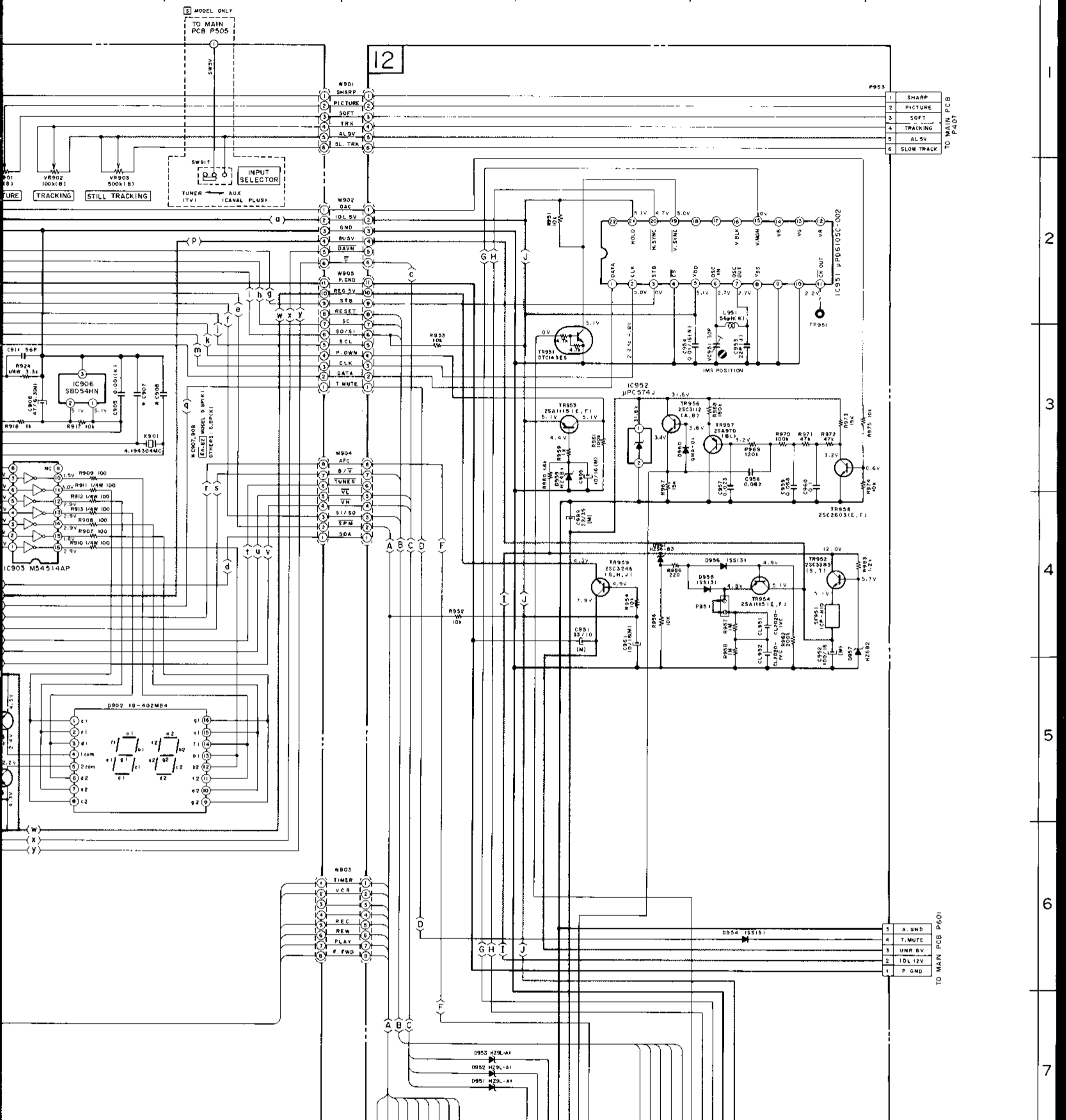
M54548L (CAPSTAN DRIVE IC)



INPUT			OUTPUT		Vcc SELECT	MODE
S ₁	S ₂	S ₃	O ₁	O ₂		
L	L	L	"OFF" state	"OFF" state	-	STOP
L	L	H	H	L	V _s	PLAY (+)
L	H	L	L	H	V _s	PLAY (-)
L	H	H	H	L	V ₁	FF (2)
H	L	L	L	H	V ₁	REW (2)
H	H	L	L	H	V ₁	FF (1)
H	H	H	L	L	V _s	REW (1)
H	H	H	L	L	V _s	BRAKE

TC9018P (TV SYNC GENERATOR)



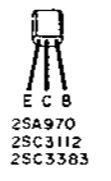
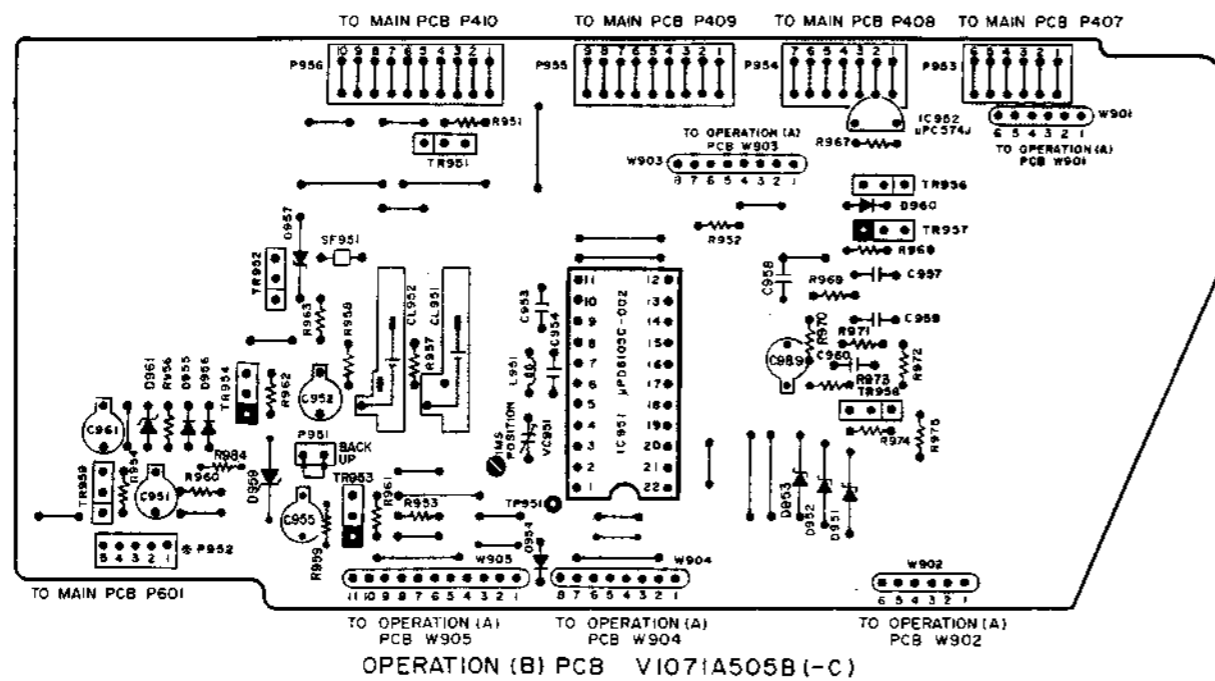


OPERATION(A) PCB V1071A505A(-C)

OPERATION(B) PCB V1071A505B(-C)

VOLTAGE MEASURED ON LLS10P1 MODE.

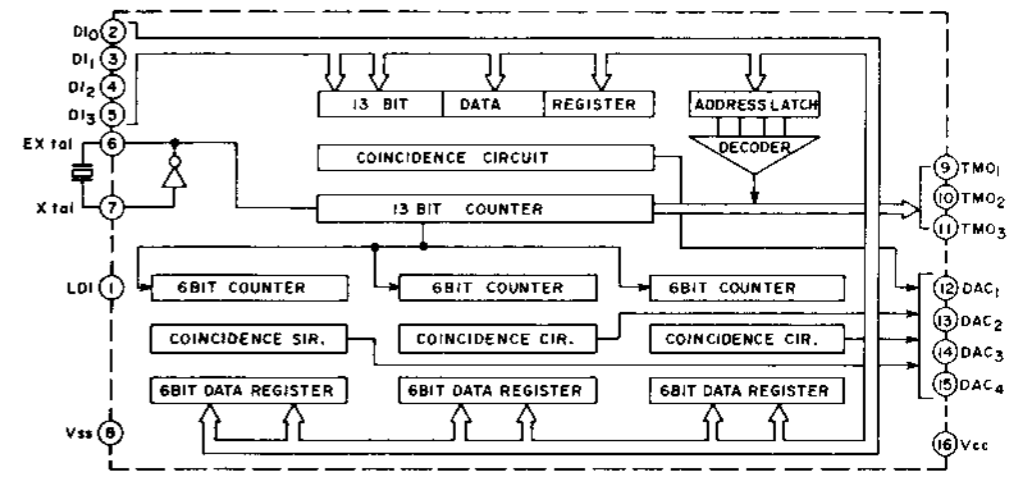
VS-240SK
 VS-244/245S
 VS-247/248S
 OPERATION(A)/(B)
 SCHEMATIC DIAGRAM
 NO. 5-3 870507A



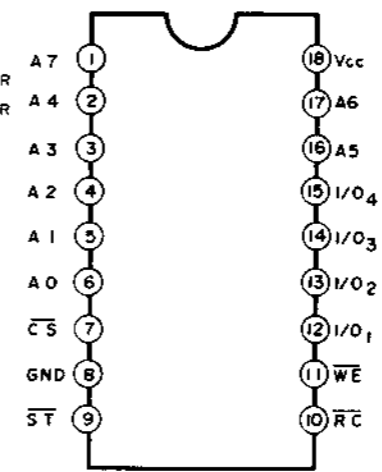
= NPN TRANSISTOR
 = PNP TRANSISTOR

ENGLISH	FRENCH	ENGLISH	FRENCH	ENGLISH	FRENCH
PICTURE TRACKING	IMAGE ALIGNEMENT	FINE TUNE MEMO	REGL. FIN MEMOIRE	REW STOP	RETOUR RAPIDE STOP
STILL TRACKING	STABILITE IMAGE FIXE	TIMER	MINUTERIE	PLAY	LECTURE
TUNING SELECTOR	SELECTEUR DE SYNTONISATION	EJECT	EJECT	F. FWD	AVANCE RAPIDE
PRESET/NORMAL/CANCEL	PRESELECT/NORMAL/ANNULATION	POWER	ALIMENT	CHANNEL UP	STATION +
BAND SELECTOR	BANDES	REC	ENRG.	CHANNEL DOWN	STATION -
TUNING	ACCORD	PAUSE/STILL	PAUSE ARR/IMGE	STAND BY	ATTENTE

MB88301A-P (D/A CONVERTER)



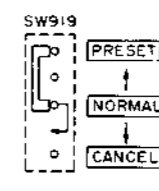
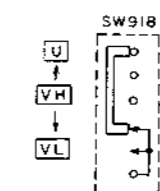
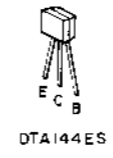
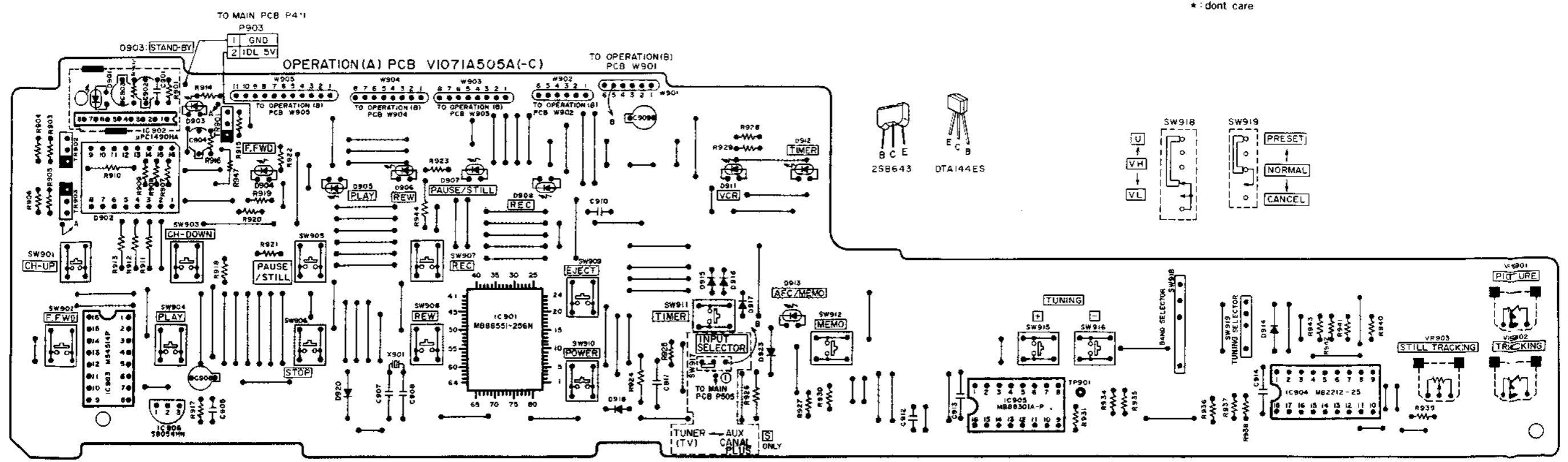
MBM2212-25 [1K(1.024)-BIT NON VOLATILE SRAM]

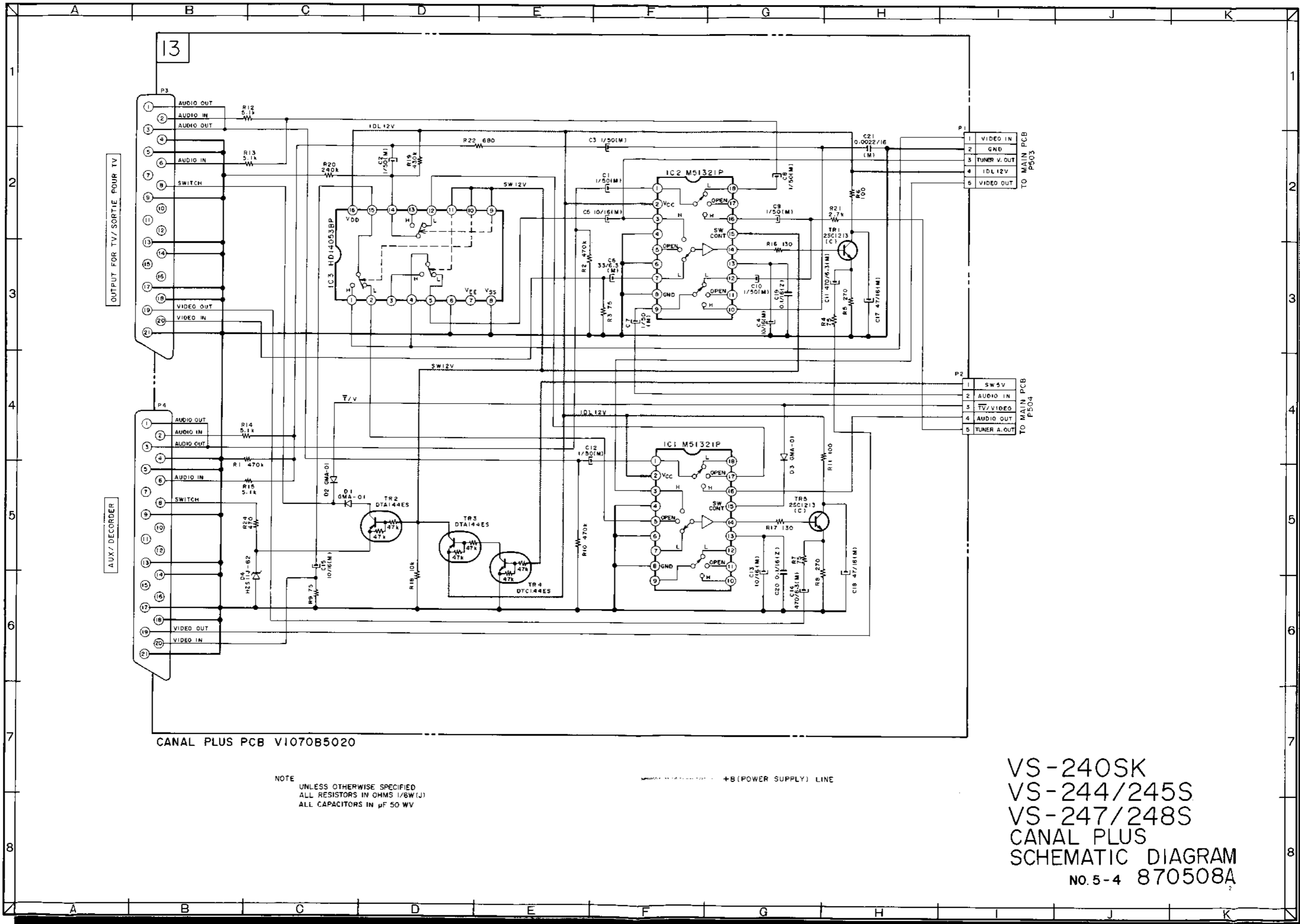


SYMBOL	PORT NAME
A0 to A7	Address inputs
I/O1 to I/O4	Data in/outputs
CS	Chip select input
WE	Write enable input
ST	Store input
RC	Recall input
Vcc	+B (+5V)
GND	Ground

CS	WE	RC	ST	MODE	DATE IN/OUT
H	*	H	H	NO FUNCTION	High impedance
L	H	H	H	SRAM READ MODE	IN
L	L	H	H	SRAM WRITE MODE	OUT
*	H	L	H	RECALL	High impedance
H	*	L	H	RECALL	// //
*	H	H	L	STORE	// //
H	*	H	L	STORE	// //

* : dont care



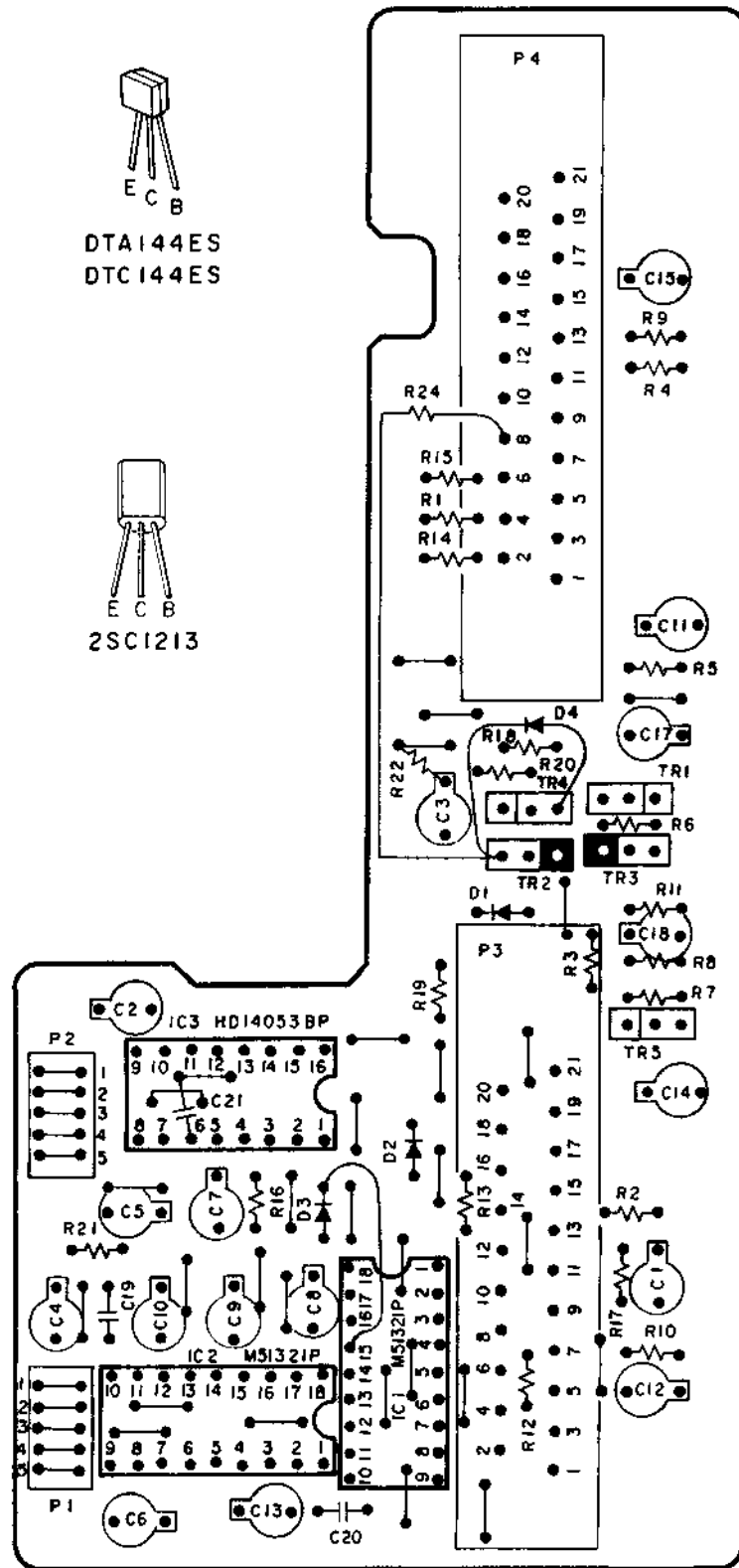


CANAL PLUS PCB V1070B5020

NOTE
 UNLESS OTHERWISE SPECIFIED
 ALL RESISTORS IN OHMS 1/6W(J)
 ALL CAPACITORS IN μ F 50 WV

---+B (POWER SUPPLY) LINE

VS-240SK
 VS-244/245S
 VS-247/248S
 CANAL PLUS
 SCHEMATIC DIAGRAM
 NO. 5-4 870508A



CANAL PLUS PCB
VI070B5020

