

XR-4400/4401/4402

SERVICE MANUAL

US Model
Canadian Model

XR-4400

AEP Model

XR-4400/4401

E Model

XR-4400

German Model

XR-4402

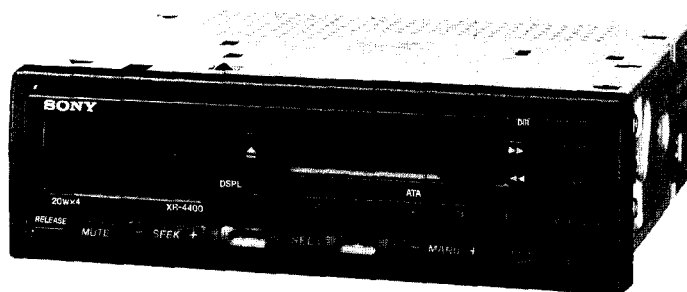


Photo: XR-4400

Model Name Using Similar Mechanism	XR-7040/7041/7042/U110
Tape Transport Mechanism Type	MG-36SZ3-32

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS (XR-4400)

POWER OUTPUT AND TOTAL HARMONIC DISTORTION 10 watts per channel minimum continuous average power at 4 ohms, 4 channels driven, from 30 to 20,000 Hz with no more than 1% total harmonic distortion.

Other Specifications

Power amplifier section

Outputs Speaker outputs
(sure seal connectors)
Speaker impedance 3.2 – 8 ohms
Maximum power output
20 W × 4 (at 4 ohms)*
* Measured at 14.4 V

Selectivity 75 dB at 400 kHz
Signal-to-noise ratio 65 dB (stereo), 70 dB
(mono)
Harmonic distortion at 1 kHz
0.6% (stereo), 0.4% (mono)
Separation 35 dB at 1 kHz
Frequency response 30 – 15,000 Hz
Capture ratio 2 dB

Cassette player section

Tape track 4-track 2-channel stereo
Frequency response 30 – 16,000 Hz
Signal-to-noise ratio 55 dB
Wow and flutter 0.13% (WRMS)

—Continued on next page—

Tuner section

FM
Tuning range XR-4400: US, Canadian model
87.5–107.9 MHz
XR-4400: AEP, E/4401/4402
87.5–108 MHz
Antenna terminal External antenna connector
Intermediate frequency 10.7 MHz
Usable sensitivity 12 dBf (75 ohms)

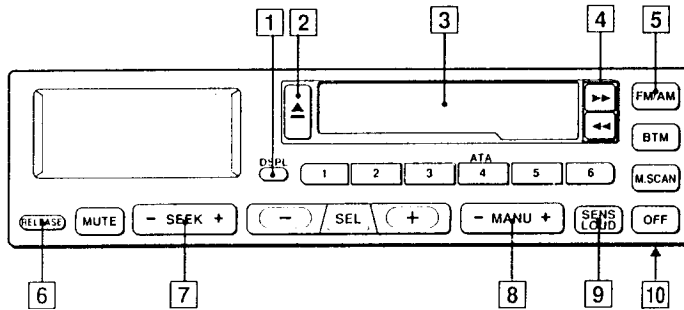
FM/AM CASSETTE CAR STEREO
XR-4400/4402

FM/MW/LW CASSETTE CAR STEREO
XR-4401



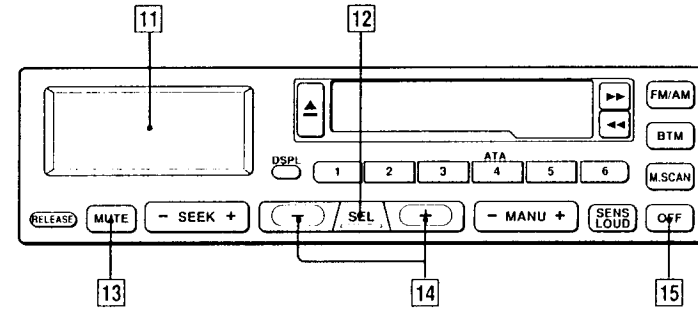
SONY®

Location and Function of Controls



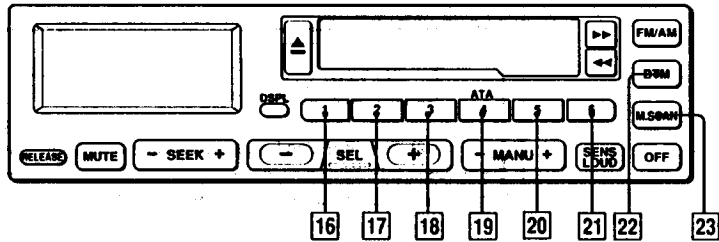
Refer to the pages in ● for details.

- 1** DSPL (display change/time set) button
- 2** ▲ (eject) button
Press to stop tape playback and to eject the cassette.
- 3** Cassette insertion door
- 4** ◀▶ (fast winding)/DIR (tape transport direction change) buttons **Ⓜ**
During playback, press ◀▶ or ▶▶ for fast winding, or press both ◀▶ and ▶▶ simultaneously to listen to the other side of the cassette.
- 5** FM/AM (radio on/band select) button (XR-4400/4402) **Ⓜ**
FM/MW/LW (radio on/band select) button (XR-4401) **Ⓜ**
- 6** RELEASE (front panel release) button **Ⓜ**
- 7** SEEK (automatic tuning) button **Ⓜ**
Press the - side to search stations in lower frequencies and the + side to search stations in higher frequencies.
- 8** MANU (manual) button **Ⓜ**
Press to tune in the desired stations manually.
- 9** SENS/LOUD (sensitivity/loudness) button **Ⓜ**
Press for more than two seconds to reinforce the bass and treble especially when listening at a low volume level. To disengage the button, press it again for more than two seconds.
- 10** POWER SELECT switch (located on the bottom of the unit)
See the description about the POWER SELECT switch in the Installation/Connections manual.



- 11** Display window
- 12** SEL (control mode select) button
Press to select the desired control mode: BAS (bass), TRE (treble), BAL (balance), FAD (fader) or VOL (volume).
- 13** MUTE button
Press to mute the sound momentarily. Press again to restore the same volume level. This button will be also canceled:
 - when the (+) or OFF button is pressed.
 - when ejecting a cassette by pressing the ▲ button during tape playback.
 - when the ignition key of your car has been turned to the OFF position for more than eight seconds.
- 14** (-) (+) (bass/treble/balance/fader/volume control) buttons
These buttons normally function as the volume control. To adjust other modes, press the (-) or (+) button within three seconds after selecting the desired mode with the SEL button. The control mode automatically goes back to the volume control mode in three seconds.
- 15** OFF (power off) button
Press to turn off the radio.

Display window	Control mode		
		Press (-)	Press (+)
BAS	Bass control	For less bass	For more bass
TRE	Treble control	For less treble	For more treble
BAL	Balance control	To decrease the right-speakers' volume	To decrease the left-speakers' volume
FAD	Fader control	To decrease the rear-speakers' volume	To decrease the front-speakers' volume
VOL	Volume control	For less volume	For more volume



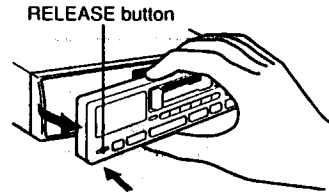
	During tape playback	During radio reception
16	—	Preset number buttons ⑬-⑰
17	—	
18	—	
19	ATA (Automatic Tuner Activation) button Press to activate the ATA function. If you press either ◀◀ or ▶▶ button during the tape playback, the radio will come on automatically. When the tape playback starts, the radio will be turned off automatically. To cancel the mode, press the button again.	
20	—	BTM (Best Tuning Memory) button ⑱
21	—	
22	—	M.SCAN (memory scan) button ⑲ Press to scan the memorized stations.
23	—	

Muting a beep sound

Press the button while pressing the SEL button. To obtain the beep sound again, press these buttons again.

Detaching the Front Panel

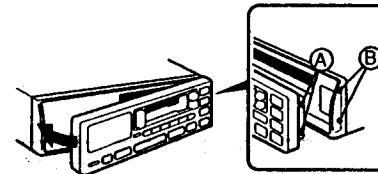
Before detaching the front panel, be sure to press the OFF button first. Then press the RELEASE button to open up the front panel, and detach the panel by pulling it towards you as illustrated.



Do not drop the panel when detaching it from the unit.

Attaching the Front Panel

Apply the right hand side of the front panel to the unit by attaching part ① of the front panel to part ② of the unit as illustrated and push until it clicks.

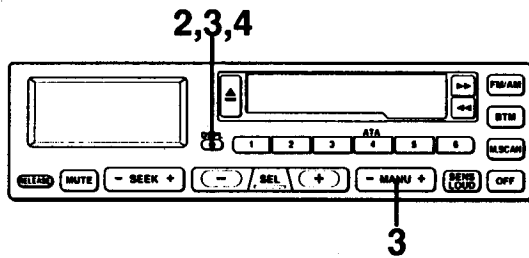


Do not press hard or apply excessive pressure to the display window of the front panel.

Caution alarm
If you turn the ignition key to the OFF position without removing the front panel, the caution alarm will be activated and a beep sound will be heard for a few seconds.

- Notes**
- Make sure that the front panel is the right way up when attaching it to the unit. It cannot be attached upside down.
 - When attaching the front panel, do not press it hard against the unit. It can be easily attached by pressing lightly.
 - Never leave the detached front panel in your car if it is parked in direct sunlight. There could be a considerable rise in temperature inside the car.
 - When you carry the front panel with you, put it in the supplied front panel case.
 - The display window may become warm while the unit is operated. This is not a sign of a malfunction.

Setting the Clock



The clock has a 12-hour digital indication.

For example, set it to 10:08.

1 Turn the ignition key to the ON position.

2 Press the DSPL button if the clock indication does not come on.



3 Press the DSPL button for more than two seconds.



While holding down the DSPL button,

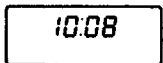
press **- MANU +** to set the time.

-: To advance the hour digits
+: To advance the minute digits



To advance the digits rapidly, keep the button pressed.

4 The clock starts when you take your finger off the DSPL button.



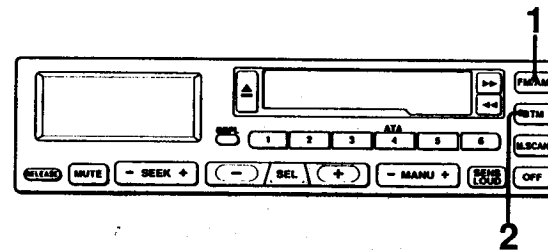
Note
If the POWER SELECT switch of the unit is set to the OFF position, the clock cannot be set unless the power is turned on. Set the clock after you turned on the radio, or tape playback.

When setting the time digits

- Minute and hour digits do not go backward.
- "00" comes after "59". The hour digits do not change then.

Memorizing the Stations Automatically

— BTM (Best Tuning Memory) Function



Stations with clearest reception are automatically searched and memorized on each band (FMI, FMII, FMIII and AMI, AMII (MW, LW for XR-4401)). Up to 6 stations on each band can be stored on the preset number buttons 1 to 6 in the order of frequency.

1 Select the desired band from FMI, FMII, FMIII, AMI or AMII (MW/LW for XR-4401).

FM/AM

XR-4400/4402

**FM
MW/LW**

XR-4401

The tuner turns on at the same time.

2 Press the BTM button to activate BTM (Best Tuning Memory) function.

BTM

The BTM function

The BTM function searches all the receivable stations within the currently selected band and memorizes the ones in good receiving conditions in sequence from the lowest frequency.

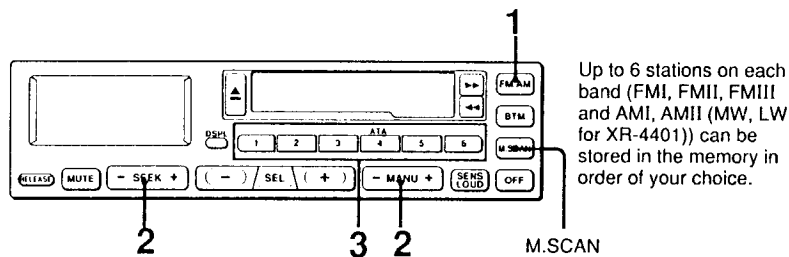
How to memorize the stations on the preset number buttons

- When there is no preset number indicated on the display window: all the preset number buttons set in the currently selected band will be filled with the memories.
- When there is a preset number indicated on the display window: the unit will memorize the stations on the preset number buttons from the one currently being displayed. For example, when you choose FMI and preset number 3 is being displayed, the operation will start from the preset number 3 on FMI and stops at the preset number 6 on FMIII.

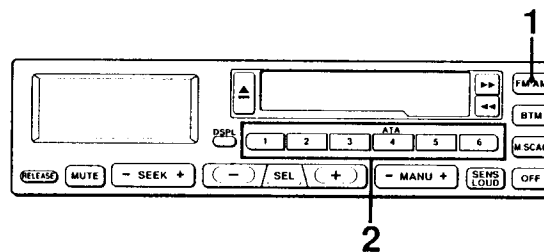
The receivable frequencies of FMI, FMII and FMIII are the same.
Therefore, 18 stations can be memorized on FM.

Note
There may be cases where there are not enough receivable stations due to the lack of stations in the vicinity or weak broadcasting signals. In such cases, the BTM operation may stop without all the buttons being occupied with memories.

Memorizing Only the Desired Stations



Receiving Stations Stored in the Memory



For example, store a station on the preset number button 1.

- 1** Select the desired band from FMI, FMII, FMIII, AMI or AMII (MW/LW for XR-4401).

FM/AM

XR-4400/4402

**FM
MW/LW**

XR-4401

The tuner turns on at the same time.
- 2** Tune in the station which you wish to store on the preset number button (page 12 or 14).

- SEEK +

or

- MANU +
- 3** Keep the preset number button pressed for about two seconds until the "MEM" indication comes on in the display window.

1

FM: 87.9 MEM

Repeat the same procedure to store other stations.

Only one station per band (FMI, FMII, FMIII and AMI, AMII (MW, LW)) can be stored in the memory on each preset number button. If you try to store another station on the same preset number button, the previously stored station will be erased.

When the "MEM" indication comes on, the station is stored in the memory and the operation is completed. The "MEM" indication goes off after a while.

Note
There may be cases in which even the stations stored in the memory cannot be received due to weak signals in the vicinity of your car.

- 1** Select the desired band from FMI, FMII, FMIII, AMI or AMII (MW/LW for XR-4401).

FM/AM

XR-4400/4402

**FM
MW/LW**

XR-4401

The tuner turns on at the same time.
- 2** Press lightly the preset number button on which the desired station is to be stored.

1

6

Notes

- If the signals in the vicinity of your car are too weak, even stations stored in the memory cannot be received.
- If you press the preset number button for more than two seconds, the currently received station will be memorized. To receive the previously memorized station, press the preset number button only lightly.

Checking in Order, All the Stations Stored in the Memory — Memory Scan Function

Press the M.SCAN button lightly. The tuner will receive in order, all the stations stored in the memory for five seconds each.

To cancel
Press the M.SCAN button lightly once more. The memory scan will be canceled and you will be able to listen to the station currently being received.

Installation

Precautions

- Choose the installation location carefully so that the unit will not hamper the driver during driving.
- Avoid installing the unit where it would be subject to high temperatures, such as from direct sunlight or hot air from the heater, or where it would be subject to dust, dirt or excessive vibration.
- Use only the supplied mounting hardware for a safe and secure installation.
- Before installing the unit, detach the front panel.

Mounting angle adjustment

Adjust the mounting angle to less than 20°.

How to Detach and Attach the Front Panel

To detach

Press the RELEASE button to open the front panel, then pull it out.

To attach

Align the part (A) and (B), and push the front panel until it clicks.

Installation

Précautions

- Choisir soigneusement l'emplacement de l'installation pour ne pas gêner la conduite.
- Éviter d'installer l'appareil là où il serait soumis à des températures élevées, comme en plein soleil ou à proximité d'une bouche d'air chaud, de la poussière, de la saleté ou des vibrations violentes.
- Pour garantir un montage sûr, n'utiliser que le matériel fourni.
- Avant d'installer l'appareil, veiller à enlever le panneau avant.

Réglage de l'angle de montage

Ajuster l'inclinaison à un angle inférieur à 20°.

Dépose et pose du panneau avant

Dépose

Appuyer sur la touche RELEASE avant d'ouvrir le panneau avant, puis le tirer vers vous.

Pose

Aligner les pièces (A) et (B) et pousser le panneau avant jusqu'à enclenchement.

Inbouwen

Voorzorgsmaatregelen

- Kies met overleg een plaats voor het apparaat. Let er goed op dat de bestuurder bij het rijden geen hinder van het apparaat onderwindt.
- Monteer het apparaat niet op een plaats waar dit blootgesteld staat aan hoge temperaturen (direct zonlicht, in de buurt van een warmeluchtrooster van de verwarming e.d.). Vermijd ook stoffige en vuile plaatsen alsmede plaatsen waar het apparaat blootgesteld staat aan trillingen.
- Gebruik uitsluitend het bijgeleverde montage-materiaal voor het inbouwen van het apparaat.
- Verwijder het voorpaneel alvorens u het apparaat inbouwt.

Toelaatbare inbouwhoek

De inbouwhoek moet minder dan 20° zijn.

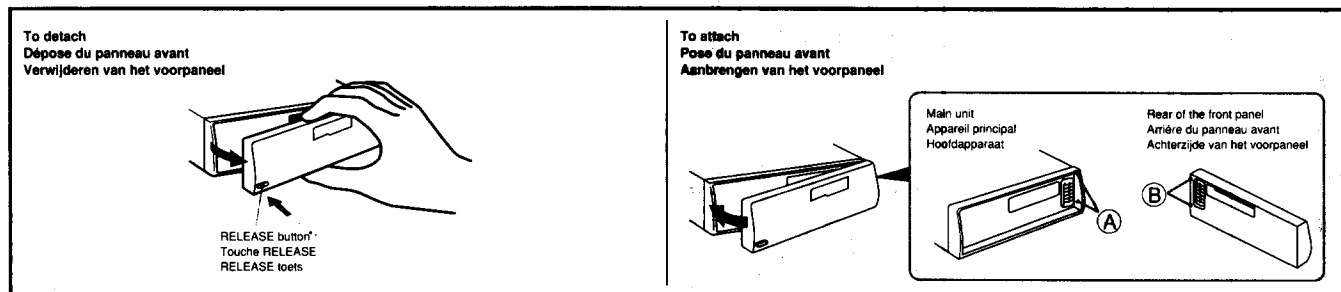
Verwijderen en weer aanbrengen van het voorpaneel

Verwijderen

Druk op de RELEASE toets zodat het voorpaneel ontgrendeld wordt en verwijder dit vervolgens van het apparaat.

Aanbrengen

Zorg dat punt (A) en punt (B) tegenover elkaar liggen en druk het voorpaneel dan aan, totdat dit vastklikt.



Mounting example

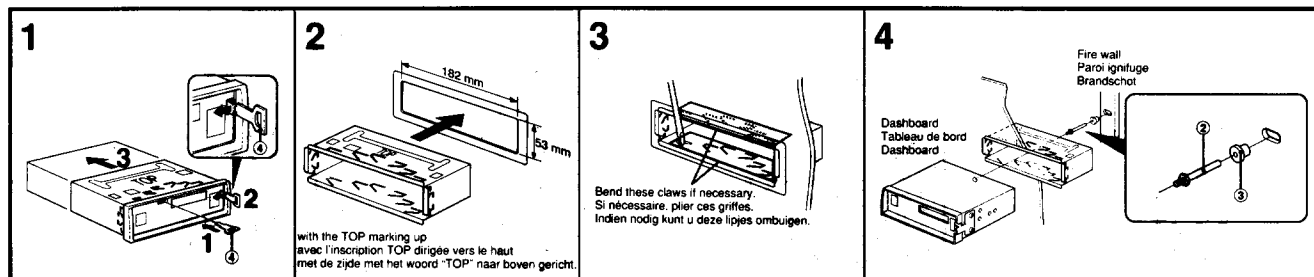
Installation in the dashboard

Exemple d'installation

Encastrement dans le tableau de bord

Montage-voorbeeld

Inbouw in het dashboard



Mounting the Unit in a Japanese Car

This unit may be installed in some makes of cars. In this case, consult your nearest Sony dealer.

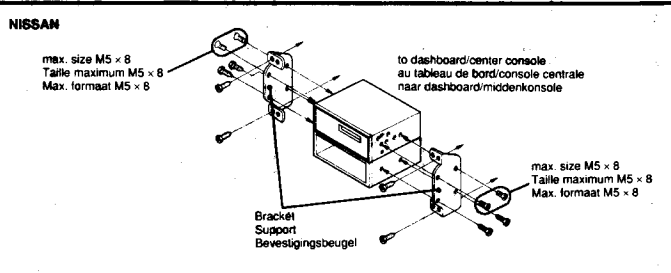
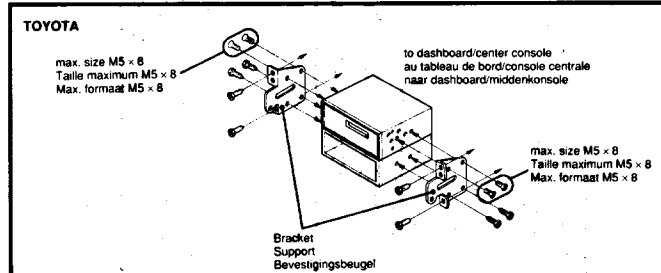
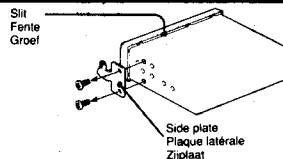
Installation de l'appareil dans une voiture japonaise

Cet appareil peut ne pas être installé dans certaines. Consultez voitures, dans ce cas votre concessionnaire Sony.

Inbouwen van het apparaat in een Japanese auto

Het is mogelijk dat het apparaat in sommige auto's niet kan worden ingebouwd. Raad pleeg in dat geval uw Sony handelaar.

Run a blade along the slits on the back of the front trim and cut it off the unit. At the same time, remove the side plate as well.
Passer une lame le long des fentes à l'arrière de la bordure avant et la couper. Au même moment, enlever également la plaque latérale.
Steek een mes in de gleuven aan de achterzijde van de voorplaat en snijd de voorplaat van het apparaat weg. Verwijder tagelijkertijd de zijplaat.



Note
Use the existing parts supplied to your car.

Remarque
Utiliser les pièces fournies avec la voiture.

Opmerking
Gebruik het montage-materiaal dat bij uw auto wordt geleverd.

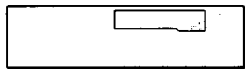
Caution

- This unit is designed for negative ground 12 V DC operation only.
- Before making connections, disconnect the ground terminal of the car battery to avoid short circuits.
- Connect the red power input lead only after all other leads are connected. Be sure to connect it to the positive 12 V power terminal which is energized when the ignition key is set to the accessory position.
- Run all ground wires to a common ground point.

POWER SELECT Switch

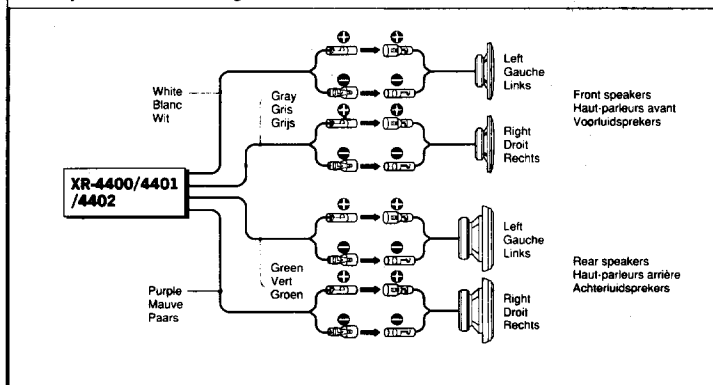
The illumination on the front panel is factory-set to be turned on even when the unit is not used. However, this setting may cause some car battery wear if the unit is used in a car with no accessory position on the ignition key lock.

To avoid battery wear in such a car, set the POWER SELECT switch, located on the bottom of the unit, to the OFF position. The illumination is reset to stay off when the unit is not used.



Change the position with a jeweler's screwdriver, etc.
Changer la position avec un petit tournevis, ou un objet similaire.
Verstel de schakelaar met een kleine schroevendraaier e.d.

Speaker Connections Connexion des haut-parleurs Luidspreker-aansluiting



Notes on speaker connection

- Use speakers with an impedance of 3.2 to 8 ohms, and with adequate power handling capacities. Otherwise, the speakers may be damaged.
- Do not connect the terminals of the speaker system to the car chassis, and do not connect the terminals of the right speaker with those of the left speaker.
- Do not connect the speakers in parallel.
- Do not connect any active speakers (with built-in amplifiers) to the speaker terminals of the unit. Doing so may damage the active speakers. Therefore, be sure to connect passive speakers to these terminals.

Remarques sur la connexion des haut-parleurs

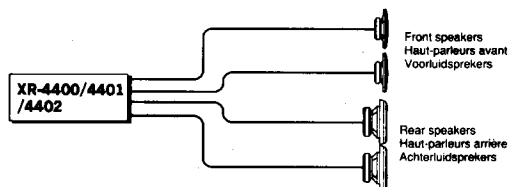
- Utiliser des haut-parleurs avec une impédance de 3,2 à 8 ohms et qui peuvent supporter l'alimentation fournie sinon ils risqueraient d'être endommagés.
- Ne pas connecter les bornes du système de haut-parleur au châssis de la voiture et ne pas raccorder les bornes du haut-parleur droit aux bornes du haut-parleur gauche.
- Ne pas essayer de connecter les haut-parleurs en parallèle.
- Ne pas connecter d'enceintes acoustiques actives (avec amplificateurs intégrés) aux bornes d'enceinte de cet appareil, pour éviter d'endommager les enceintes. Veiller à raccorder des enceintes passives.

Opmerkingen betreffende het aansluiten van de luidsprekers

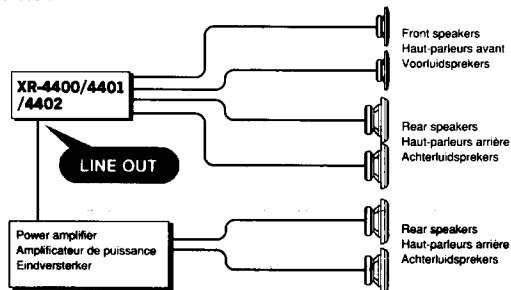
- Gebruik luidsprekers met een impedantie van 3,2 tot 8 Ohm en let op dat die het vermogen van de versterker kunnen verwerken. Als dit wordt verzuimd, kunnen de luidsprekers ernstig beschadigd raken.
- Verbind in geen geval de aansluitingen van de luidsprekers met het chassis van de auto en sluit de aansluitingen van de rechter en linker luidspreker niet op elkaar aan.
- Probeer niet de luidsprekers parallel aan te sluiten.
- Sluit geen actieve luidsprekers (luidsprekers met ingebouwde versterkers) aan op de luidsprekeraansluitingen van het apparaat. Dit kan resulteren in beschadiging van de actieve luidsprekers. Op deze aansluitingen mogen uitsluitend passieve luidsprekers worden aangesloten.

Connection Diagram Schéma de connexions Aansluitschema

Example 1 Exemple 1 Voorbeeld 1



Example 2 Exemple 2 Voorbeeld 2



Précautions

- Cet appareil est conçu pour fonctionner uniquement sur courant Coi 12 V.
- Avant d'effectuer les connexions, débrancher la borne de terre de la batterie de voiture pour éviter un court-circuit.
- Connecter le fil d'entrée d'alimentation rouge en dernier. Le raccorder à la borne d'alimentation positive de 12 V qui est énergétisée quand la clé de contact est sur la position accessoire.
- Raccorder les fils de terre à un point de masse commun.

Opgelet

- Dit apparaat mag uitsluitend gebruikt worden op 12 V gelijkstroom.
- Alvorens te beginnen met het maken van aansluitingen, dient u de aardklem van de auto-accu los te maken. Dit om kortsluiting te voorkomen.
- Sluit de rode stroomdraad pas aan nadat alle andere aansluitingen zijn gemaakt.
- Zorg ervoor dat deze stroomdraad op de positieve 12 V accu-aansluiting wordt aangesloten. De draad komt dan onder spanning te staan, wanneer de contact sleutel in de accessoire-stand wordt gezet.
- Sluit alle aarddraden op een gemeenschappelijk aardpunt aan.

Interrupteur POWER SELECT

L'éclairage du panneau avant est réglé en usine pour rester allumé même quand l'appareil n'est pas utilisé. Cependant, dans le cas des voitures dont la clé de contact n'a pas de position accessoire, la batterie s'épuise.

Pour éviter cet inconvénient, régler l'interrupteur POWER SELECT situé sur le socle de l'appareil sur la position OFF.

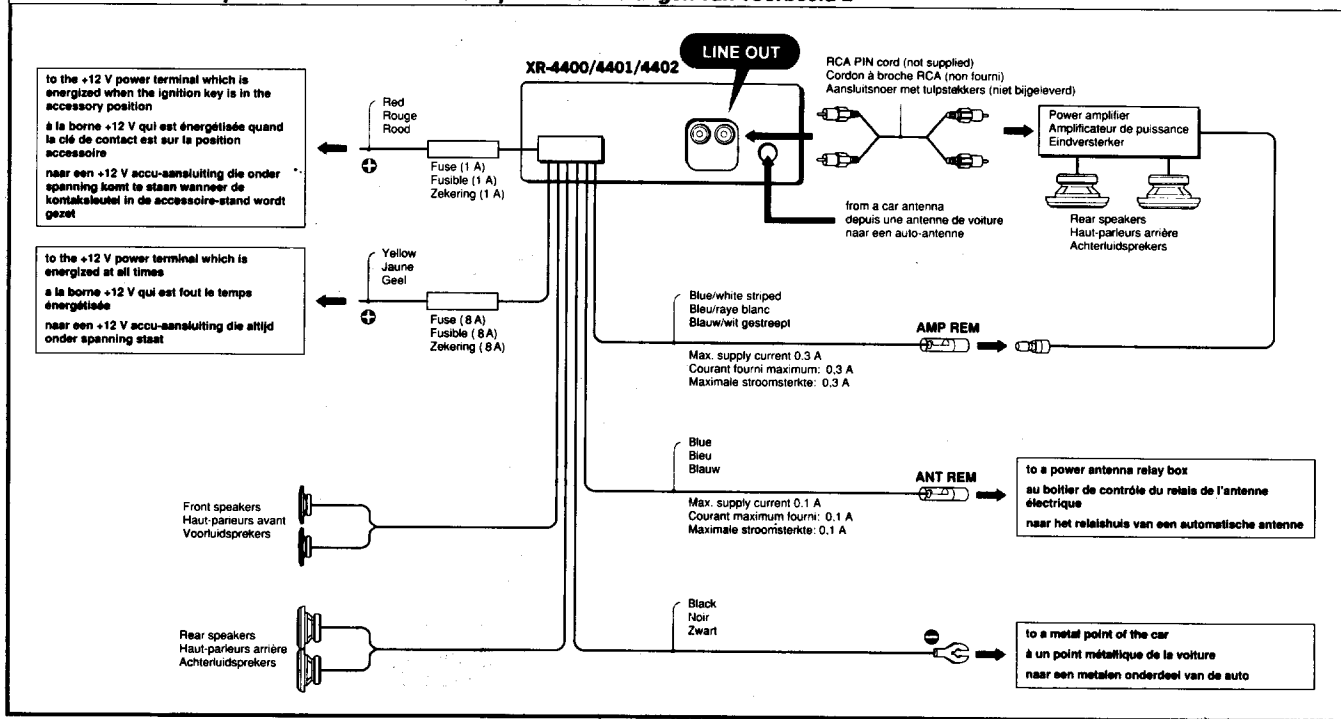
L'éclairage s'éteint quand l'appareil n'est pas utilisé.

Stroomkeuzeschakelaar (POWER SELECT)

Bij het verlaten van de fabriek is de verlichting van het voorpaneel zodanig ingesteld dat deze ook brandt wanneer het apparaat niet is ingeschakeld. Dit kan echter in beperkte mate uitputting van de accu veroorzaken wanneer het apparaat gebruikt wordt in een auto waarvan het contactslot geen accessoire-stand heeft.

Zet de POWER SELECT schakelaar (deze bevindt zich aan de onderkant van het apparaat) in zo'n geval op OFF. De verlichting van het apparaat gaat nu niet meer branden wanneer het apparaat niet gebruikt wordt.

Connections of example 2 / Connexions de l'exemple 2 / Aansluitingen van voorbeeld 2



Notes on the control leads

- The power antenna control lead (blue) supplies 12 V DC when you turn on the tuner or when you activate the ATA (Automatic Tuner Activation) function.
- A power antenna without relay box cannot be used with this unit.

Remarques sur les fils de contrôle

- Le fil de contrôle de l'antenne électrique (bleu) fournit du courant continu de 12 V quand le tuner est mis sous tension ou quand la fonction ATA (Activation automatique du tuner) est activée.
- Une antenne électrique sans boîtier de relais ne peut pas être utilisée avec cet appareil.

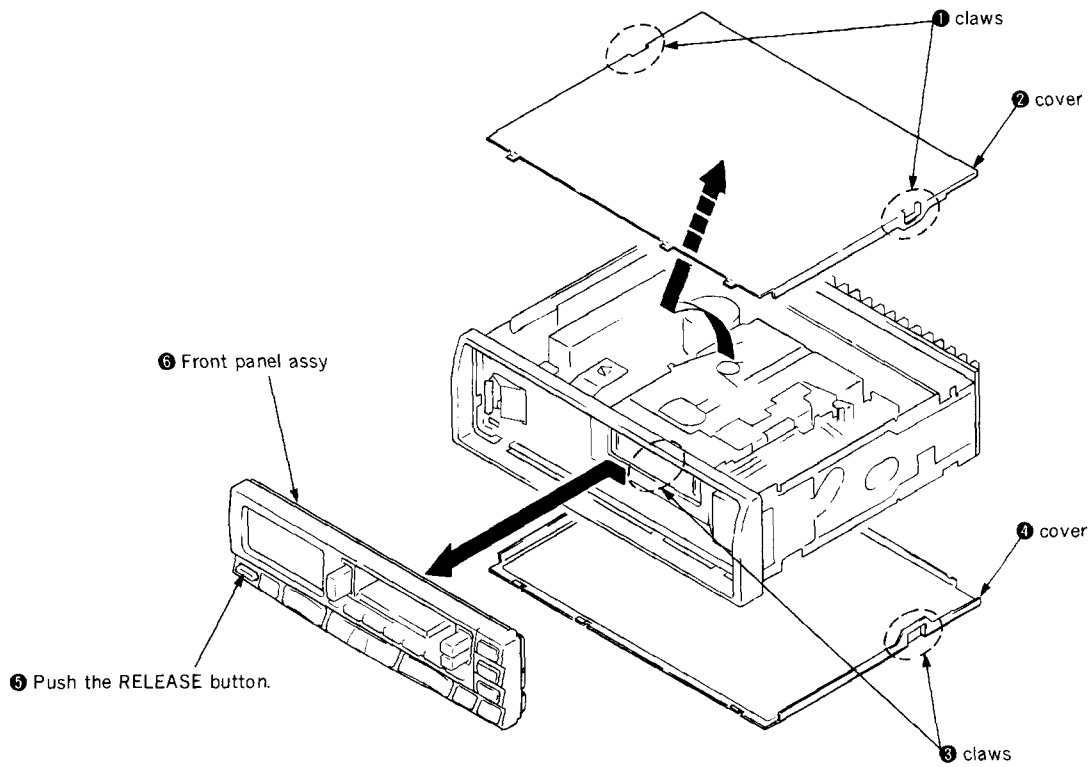
Opmerkingen betreffende de bedieningsaansluitingen

- Het aansluitingsnoer voor de automatische antenne (blauw) levert +12 V gelijkstroom als de tuner wordt ingeschakeld of als de ATA automatische tuner-inschakelfunctie in werking treedt.
- Met dit apparaat is het niet mogelijk een automatische antenne zonder relaishuis te gebruiken.

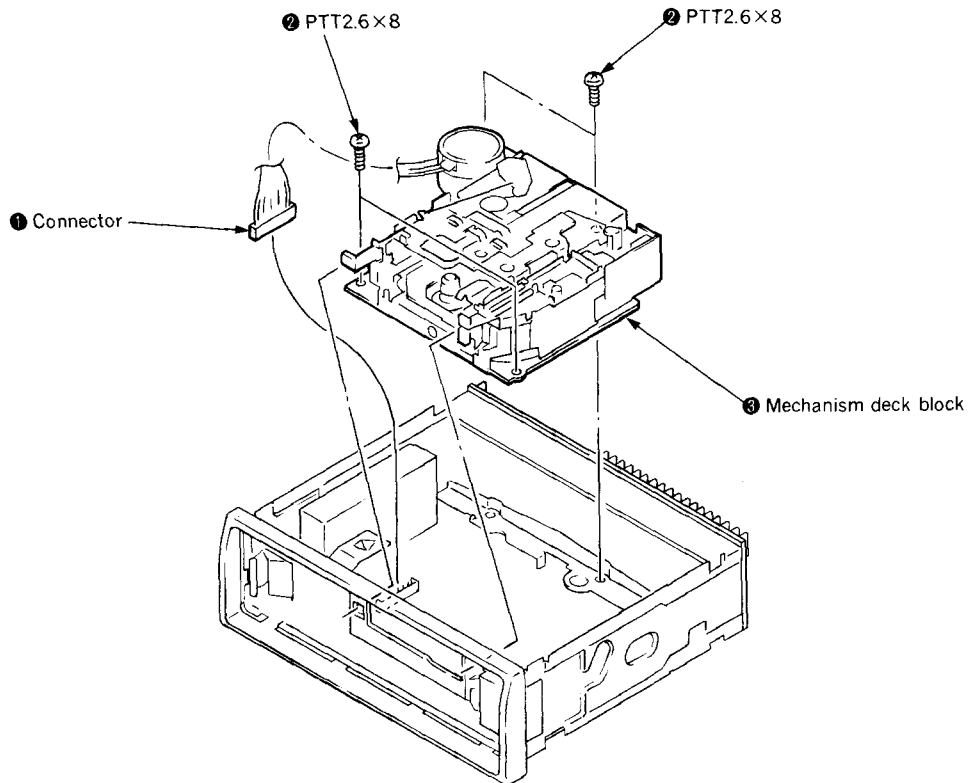
SECTION 2 DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

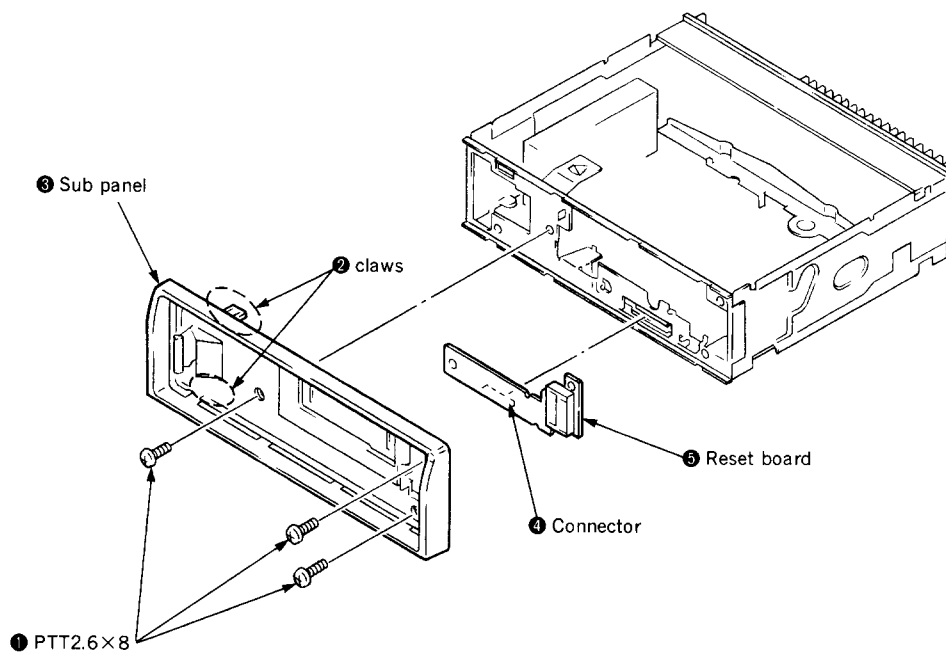
2-1. COVER, FRONT PANEL ASSEMBLY



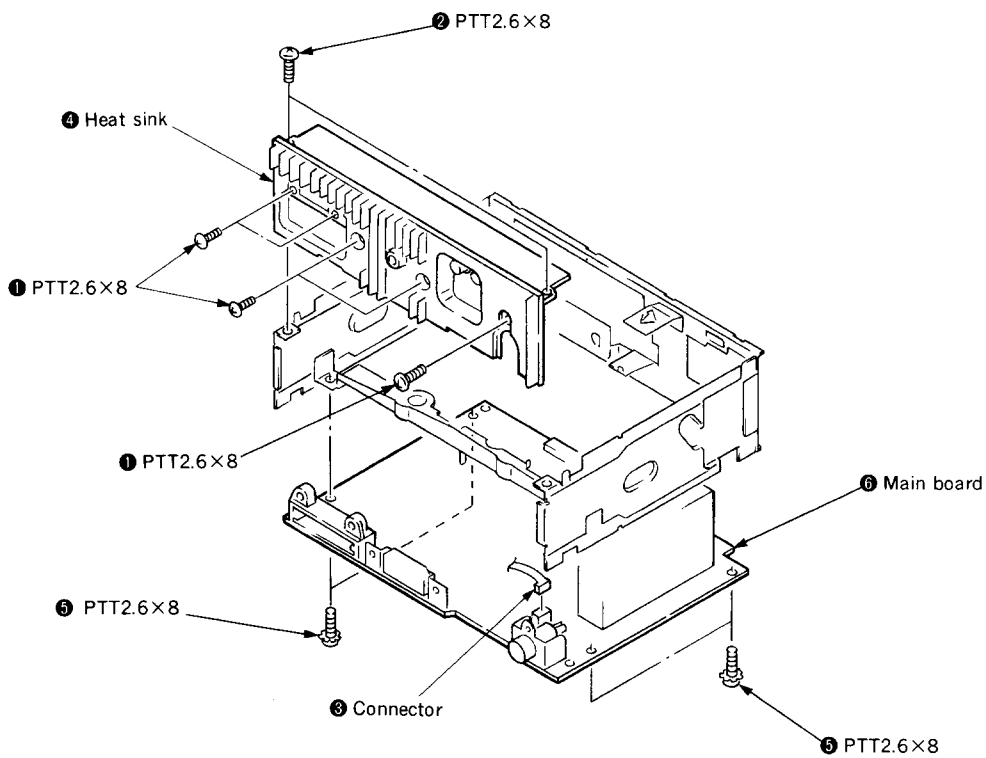
2-2. MECHANISM DECK BLOCK



2-3. RESET BOARD



2-4. MAIN BOARD



SECTION 3 MECHANICAL ADJUSTMENTS

PRECAUTION

1. Wipe the following components with an absorbent cotton cloth moistened with alcohol before adjustment :

PB head	Pinch roller
Idler	Rubber belt
Capstan	
2. Demagnetize the PB head using a head demagnetizer.
3. Be careful not to use a magnetized screwdriver.
4. After the adjustment is completed, lock the adjustment parts using screws.
5. Unless otherwise specified, make adjustments at the specified voltage (14.4V).

Torque Measurement

Mode	Torque Meter	Meter Reading
FWD	CQ-102C	40—75g·cm (0.56—1.04oz·inch)
FWD Back Tension		1—5g·cm (0.01—0.06oz·inch)
REV	CQ-102RC	40—75g·cm (0.56—1.04oz·inch)
REV Back Tension		1—5g·cm (0.01—0.06oz·inch)
FF, REW	CQ-201B	45—150g·cm (0.63—2.08oz·inch)

SECTION 4 ELECTRICAL ADJUSTMENTS

DECK SECTION

1. The adjustments should be performed in the order given in this service manual.
2. The adjustments should be performed for both L-CH and R-CH.

Test Tape

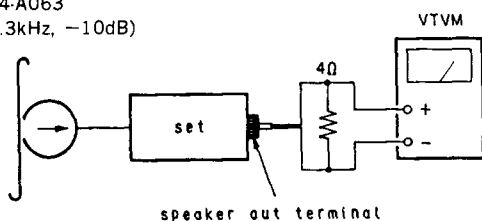
Type	Signal	Used for
P-4-A063	6.3kHz, -10dB	head azimuth adjustment
WS-48A	3kHz, 0dB	tape speed adjustment

PB Head Azimuth Adjustment

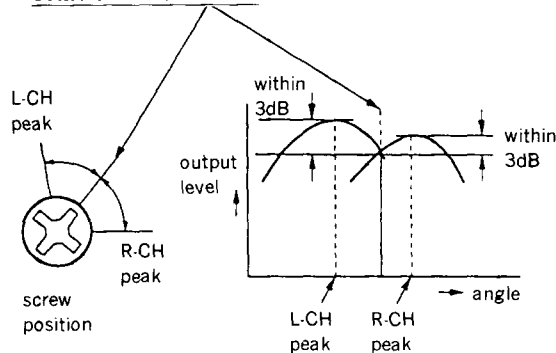
Procedure :

1. Mode: playback

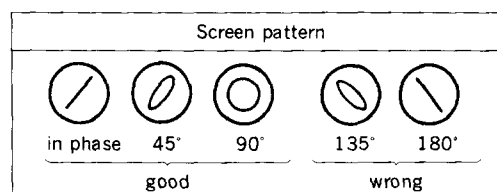
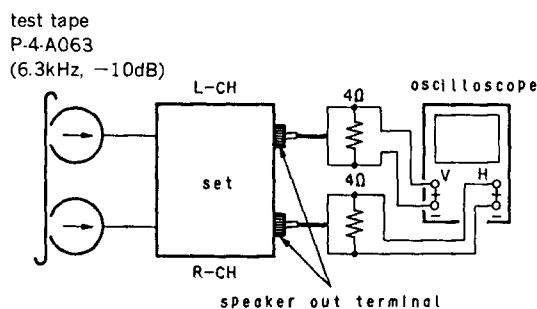
test tape
P-4-A063
(6.3kHz, -10dB)



2. Turn the screw and check the output peak value. Adjust the screw so that the peak value in channels L and R coincides within 3dB.

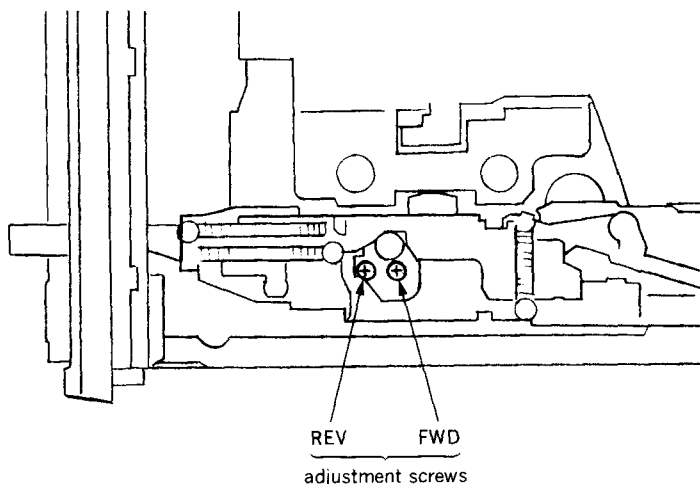


3. Check the phase in the PB mode.



4. Repeat the above adjustment for the PB REV mode.

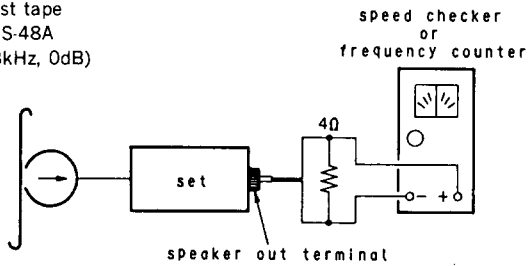
Adjustment Location :



Tape Speed Adjustment

Setting :

test tape
WS-48A
(3kHz, 0dB)



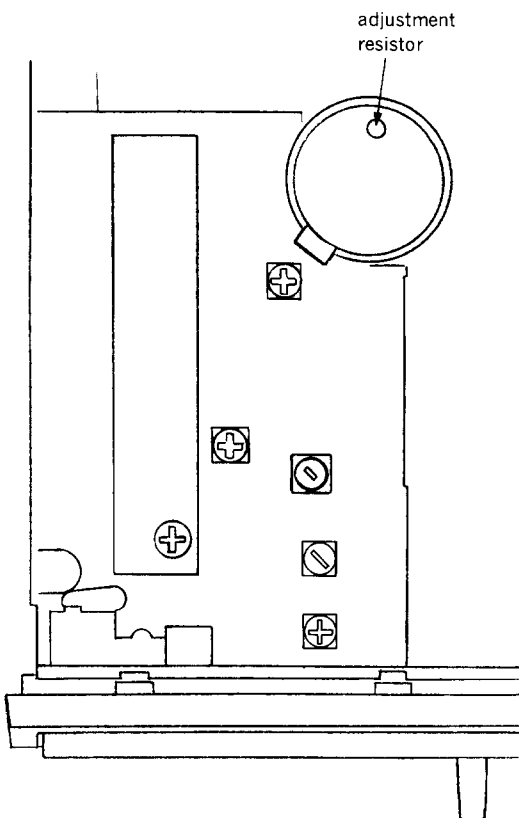
Procedure :

1. Put the set into the FWD PB mode.
2. Adjust adjustment resistor for inside capstan motor so that the reading on the speed checker or frequency counter becomes in specification.

Specification : Constant speed

Speed checker	Frequency counter
-2.0 to +3.0%	2,940 to 3,090Hz

Adjustment Location :



TUNER SECTION

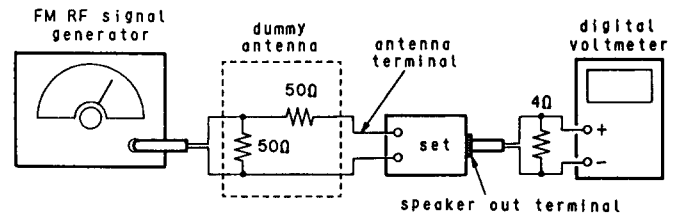
Cautions during repair

When the front end is defective, replace it by a new one because its internal block is difficult to repair.

FM Center Adjustment

Setting :

Band : FM

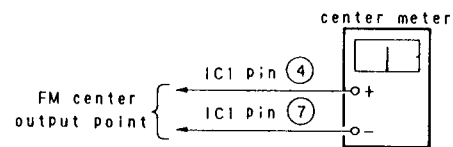


Carrier frequency : 98MHz (4400 : AEP, E/4401/4402)
97.9MHz (4400 : US, Canadian model)

Output level : 60dB (1mV)

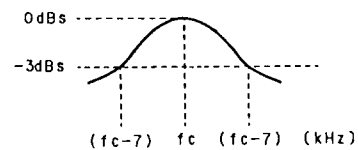
Mode : mono

Modulation : 1kHz, 75kHz deviation (100%)



Procedure :

1. Adjust T1 so that the reading on the center meter becomes in $0 \pm 20\text{mV}$.
2. Output an Fcenter 60dB signal output from FM rf signal generator so that the speaker output terminal is 0dBs.
3. Change the FM rf signal generator frequency and check the deviation of the frequency on + side and - side when the speaker output terminal drops 3dB.
4. Re-adjust T1 when the difference deviation of the frequency does more than 7kHz.

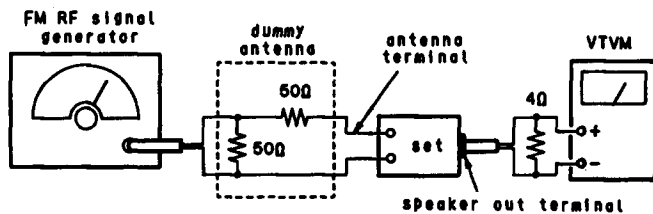


Adjustment Location : main board

FM Stereo Separation Adjustment

Setting :

Band : FM



Carrier frequency : 98MHz (4400 : AEP, E/4401/4402)
 97.9MHz (4400 : US, Canadian model)
 Output level : 70dB (3.2mV)
 Mode : stereo
 Modulation : main channel 1kHz, 33.75kHz deviation (45%)
 : sub channel 1kHz, 33.75kHz deviation (45%)
 : pilot signal 19kHz, 7.5kHz deviation (10%)

Procedure :

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ [Ⓟ] Adjust RV2 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ [Ⓟ] Adjust RV2 for minimum reading.

L-CH stereo separation : Ⓐ—Ⓑ

R-CH stereo separation : Ⓒ—Ⓓ

The separations of both channels should be equal.

Adjust so that separation is maximized.

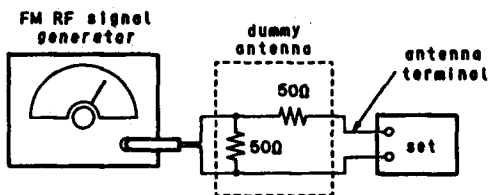
(separation > 25dB)

Adjustment Location : main board

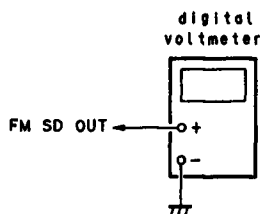
FM Auto Scan/Stop Level Adjustment

Setting :

Band : FM



Carrier frequency : 98MHz (4400 : AEP, E/4401/4402)
 97.9MHz (4400 : US, Canadian model)
 Output level : 25dB (17.8μV)
 Mode : mono
 Modulation : no modulation



Procedure :

1. Adjust RV1 so that the reading on the digital voltmeter changes point from minimum to maximum. (approx. 0.6V)
2. Confirm that the set stops auto-scanning with FM rf signal generator output level set at 25±3dB.

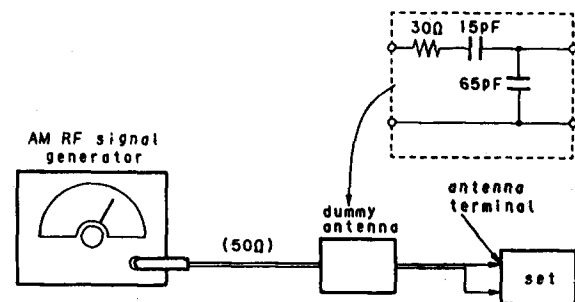
Adjustment Location : main board

AM Auto Scan/Stop Level Adjustment

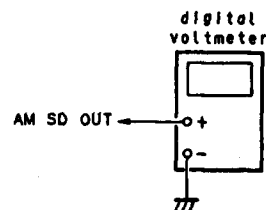
Note) Be sure to perform this adjustment after "FM Auto Scan/Stop Level Adjustment".

Setting :

Band : AM



Carrier frequency : 999kHz (4400 : AEP, E/4401/4402)
 1,000kHz (4400 : US, Canadian model)
 Output level : 30dB (31.6μV)
 Modulation : no modulation



Procedure :

Note) AM mute signal OFF. (Add +5V through 47kΩ between pins 15 and 19 of TU1.)

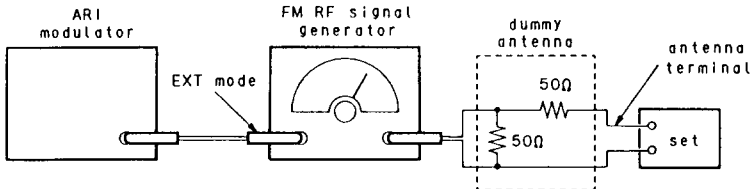
1. Adjust adjustment resistor for inside TU1 (AM tuner unit) so that the reading on the digital voltmeter changes point from minimum to maximum. (approx. 0.6V)
2. Confirm that the set stops auto-scanning with AM rf signal generator output level set at 30±3dB.

Adjustment Location : main board

SDK Adjustment (XR-4402 only)

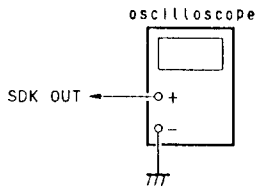
Setting :

Band : SDK (Traffic Announcement)



ARI modulation
 SK : 1.3%
 DK : 30%
 BK : 60%

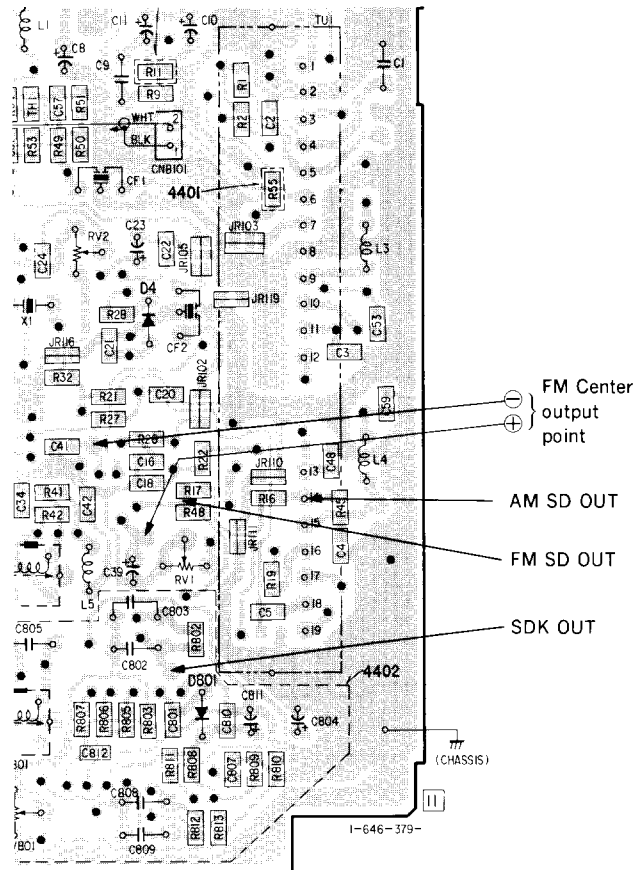
Carrier frequency : 98MHz
 Output level : 60dB (1mV)
 Mode : mono
 Modulation : 1kHz, 7.5kHz deviation



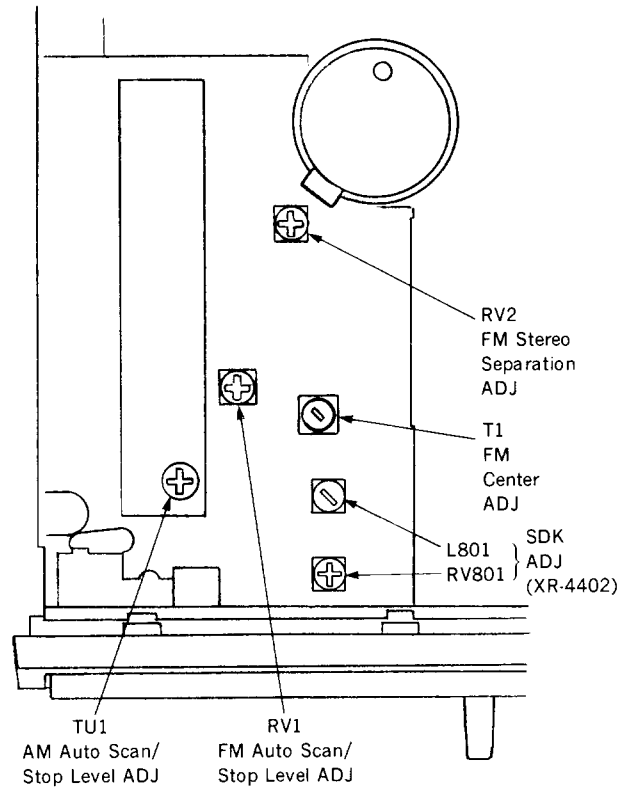
Procedure :

1. Adjust L801 and RV801 so that the output waveform become the maximum.

Adjustment Location : main board (conductor side)



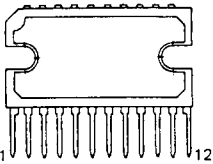
Adjustment Location : main board (component side)



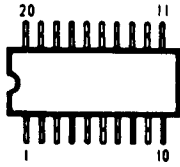
SECTION 5 DIAGRAMS

5-1. SEMICONDUCTOR LEAD LAYOUTS

BA-3910-V1

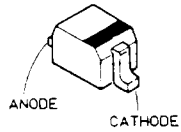


TDA1579T

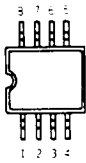


(TOP VIEW)

**DTZ5.1B
DTZ5.6B
1SS355**

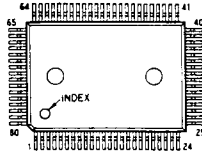


**BA328F
BA4558F**



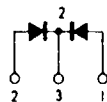
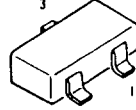
(TOP VIEW)

**μ PD17005GF649
-3B9**

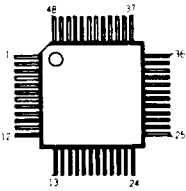


(TOP VIEW)

MA152WK

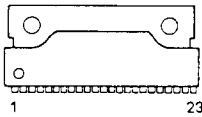


CXA1646Q

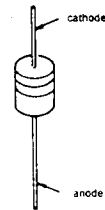


(TOP VIEW)

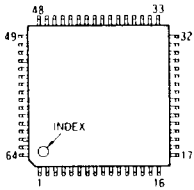
159-98



**RD18ES-B2
RD4.7ES-B2
RD6.2JS-B2
RD7.5ES-B2
RL254
1SS119
11ES2**



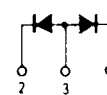
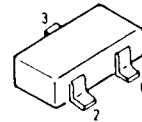
LC7582



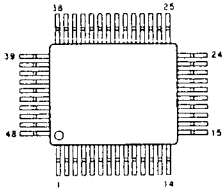
(TOP VIEW)

**DTA114EK
DTA144EK
DTC114EK
DTC144EK
DTC314TKH04
2SA1036K-R
2SA1162-G
2SC1623-L5L6
2SC3624-L18**

1S2836

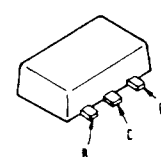


TA2027F

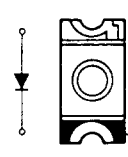


(TOP VIEW)

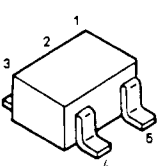
2SB1115A



**AY1101W-88
BG1101W-88**



TC4S81F



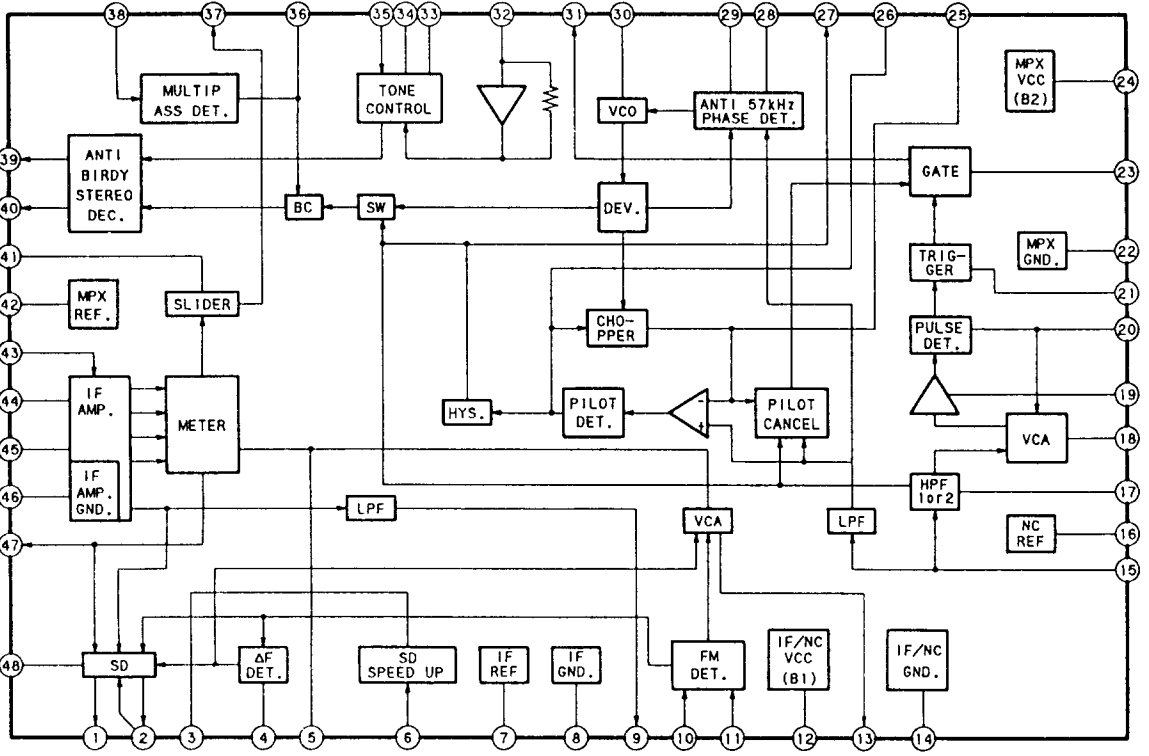
CATHODE MARK

● Semiconductor Location

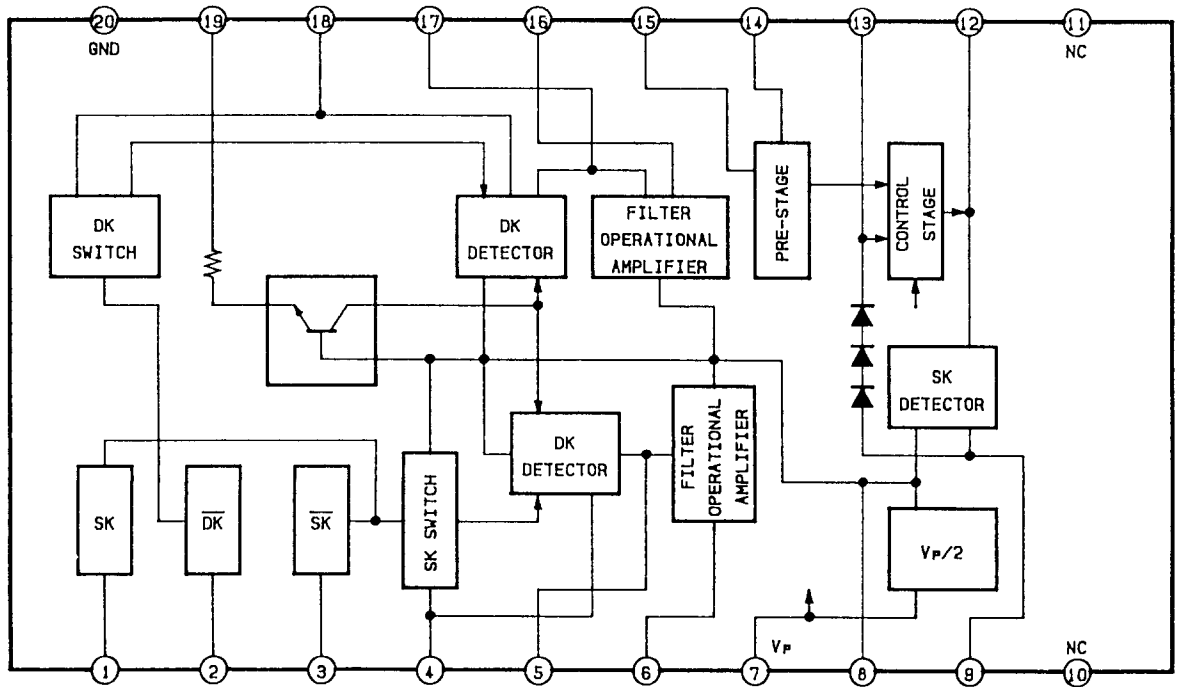
Ref. No.	Location	Ref. No.	Location
D1	B-21	D905	D-13
D2	B-21	D907	B-13
D3	G-4	D908	B-13
D4	E-20	D913	F-9
D101	E-18	D951	F-6
D102	F-17		
D201	F-18	IC1	F-5
D202	F-16	IC301	F-10
D301	G-14	IC302	E-9
D302	G-14	IC401	G-7
D303	G-13	IC402	E-8
D306	G-13	IC403	E-7
D307	G-14	IC404	D-6
D310	D-9	IC405	D-7
D315	D-9	IC501	A-16
D401	E-13	IC701	H-26
D404	B-18	IC801	G-4
D405	B-18	IC901	C-14
D501	B-13		
D701	A-23	Q1	D-3
D702	A-23	Q3	D-5
D703	A-22	Q4	E-3
D704	B-23	Q5	C-4
D705	C-23	Q6	C-4
D706	D-23	Q7	C-5
D707	F-23	Q8	C-4
D708	E-23	Q11	F-3
D709	D-23	Q12	G-3
D710	A-24	Q13	E-3
D711	B-24	Q102	B-5
D712	C-24	Q103	B-5
D713	D-24	Q202	B-5
D714	E-24	Q203	B-5
D715	E-24	Q401	D-11
D716	F-24	Q402	D-11
D717	G-24	Q451	F-8
D718	H-24	Q452	E-8
D719	I-24	Q903	C-9
D722	G-26	Q904	C-9
D723	B-22	Q905	G-10
D724	B-22	Q906	G-9
D725	B-22	Q907	G-10
D801	G-20	Q908	D-11
D902	D-14	Q909	D-11
D903	D-13	Q910	C-6
D904	C-13	Q911	F-9

● IC Block Diagrams

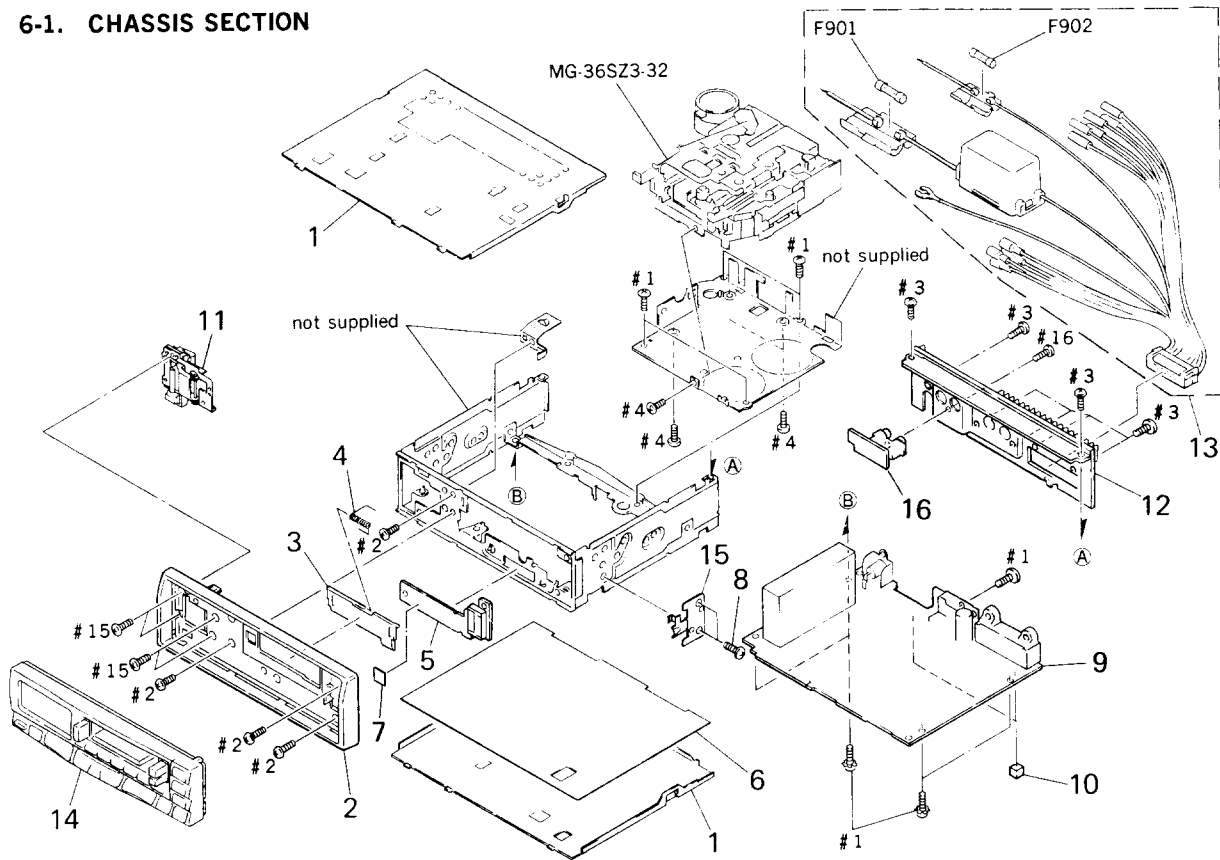
IC1 TA2027F



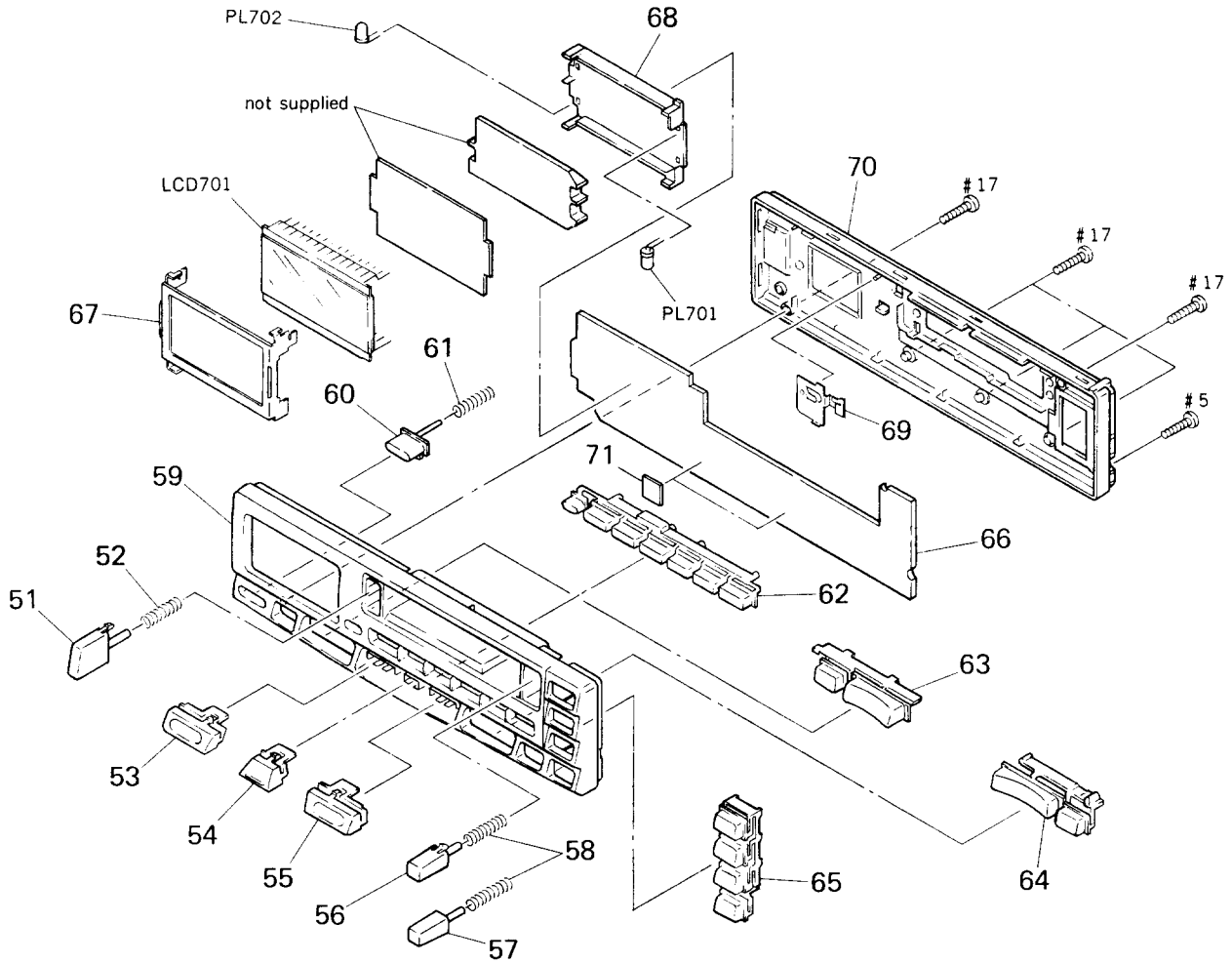
IC801 TDA1579T (XR-4402 only)



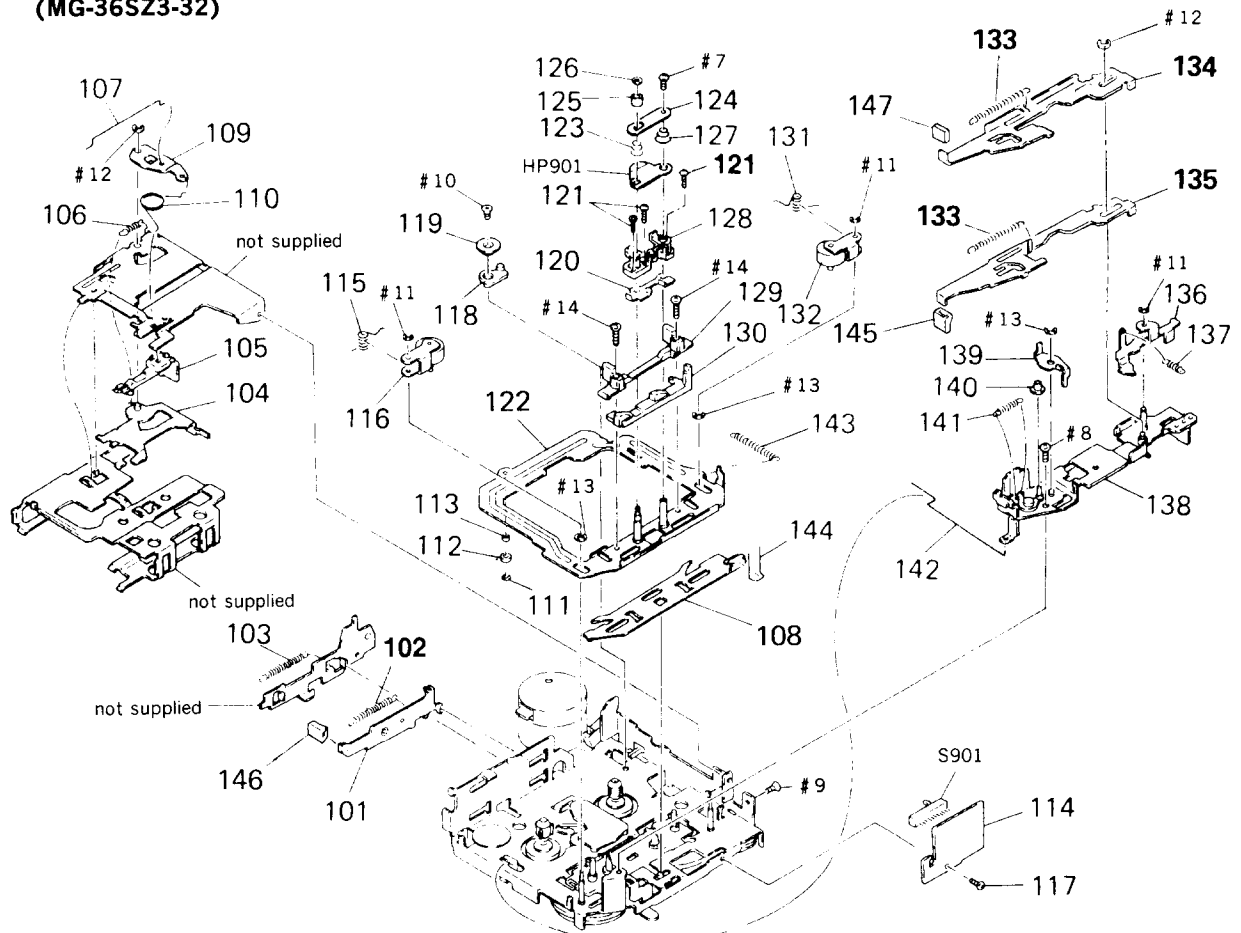
6-1. CHASSIS SECTION



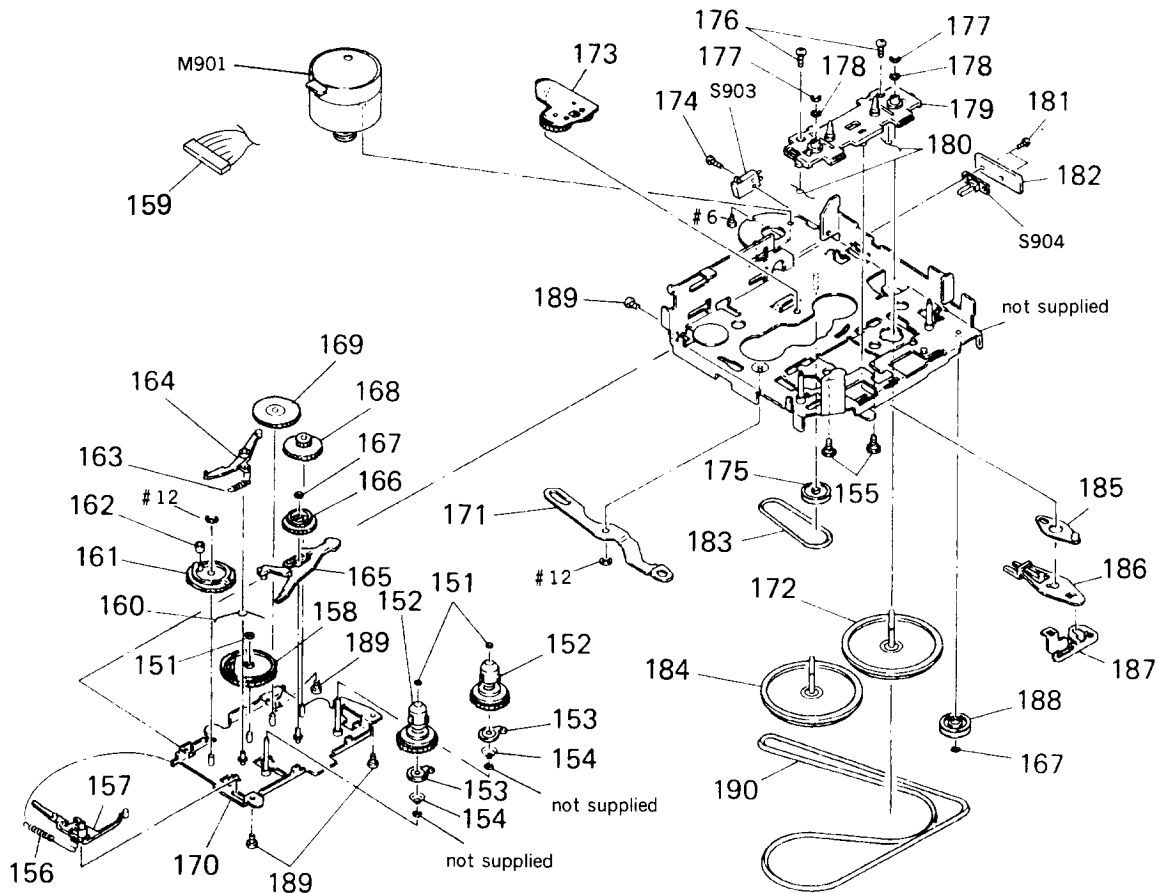
6-2. FRONT PANEL SECTION



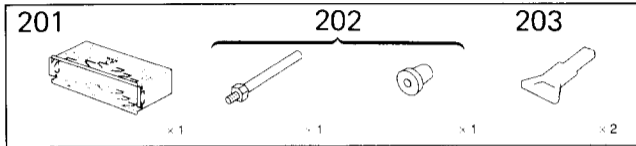
6-3. MECHANISM SECTION (1)
(MG-36SZ3-32)



6-4. MECHANISM SECTION (2)
(MG-36SZ3-32)



MOUNTING HARDWARE



- * 201 X-3366-235-1 FRAME ASSY, FITTING
- 202 X-3366-405-1 SCREW ASSY (EXP), FITTING
- 203 3-388-078-01 KEY