ADDITIONAL

Service Manual

PIONEER

ORDER NO.
ARP-481-0

FM/AM DIGITAL SYNTHESIZED TUNER

TX-950

HEZ, YP, S, S/G, SS

Type	Voltage	Remarks
HEZ	AC220V, 240V (switchable)	West Germany model
YP	AC240V only	Australia model
S	AC110V, 120V, 220V, 240V (switchable)	General export model
S/G	AC110V, 120V, 220V, 240V (switchable)	U.S. Military model
SS	AC110V, 120V, 220V, 240V (switchable)	South Africa model

The basic performance of the model TX-950/HEZ, YP, S, S/G and SS is the same as the model TX-950/KU. Please refer to TX-950/KU service manual (ARP-472) with the exception of this service manual. This additional service manual is applicable to the TX-950/HEZ, YP, S, S/G and SS model.

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1. FOR HEZ AND YP TYPES

NOTES:

- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

  Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560Ω	*56 × 10¹*	*561 .....*	*RD¼PS $\boxed{5}\boxed{6}\boxed{1}$ J*
47kΩ	*47 × 10³*	*473 .....*	*RD¼PS $\boxed{4}\boxed{7}\boxed{3}$ J*
0.5Ω	*0R5*	*..................*	*RN2H $\boxed{0}\boxed{R}\boxed{5}$ K*
1Ω	*010*	*..................*	*RS1P $\boxed{0}\boxed{1}\boxed{0}$ K*

  Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 × 10¹*	*5621 ....*	*RN¼SR $\boxed{5}\boxed{6}\boxed{2}\boxed{1}$ F*

- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★ .*

  ★★ GENERALLY MOVES FASTER THAN ★

  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

The HEZ and YP types are the same as the KU type with the exception of the following sections.

Contrast of Miscellaneous Parts

Mark	Symbol & Description	Part No.			Remarks
		KU type	HEZ type	YP type	
	Complex assembly	GWM-346	GWM-358	GWM-358	
⚠ ★★	FU601 Fuse (0.8A/125V)	AEK-118	...	...	
⚠ ★★	FU601 FUSE (T400mA/250V)	...	AEK-407	AEK-407	
	Operating Instructions (English)	ARB-602	...	ARB-602	
	Operating Instructions (English, French, German, Italian)	...	ARE-101	...	
	Packing case	AHE-332	AHE-354	AHE-354	
⚠	AC power cord	ADG-073	ADG-071	ADG-064	

Complex Assembly (GWM-358)

The complex assembly GWM-358 (for HEZ and YP types) is the same as the GWM-346 (for KU type) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		GWM-346	GWM-358	
★★	Q305, Q306	2SK246	...	
⚠ ★	T1 Power transformer	ATS-095	ATS-096	
★★	S17 Slide switch	ASH-034	...	
	C317, C318	CKDYB561K50	...	
⚠	R616 Carbon composition	ACN-140	...	
	R330, R331	RD1/8PM □□□J	...	
	Terminal (ANTENNA)	AKA-017	AKA-018	

COMPLEX ASSEMBLY (GWM-358)

IC201	PA3001-A
IC301	HA12016
IC401	LA1247
IC601	NJM78M13A
IC701	TD6104P
IC702	TC9157P
IC703	TD6301AP
Q101	2SK241-Y
Q102	2SC2786-L
Q103,201	2SC2668
Q104,105	2SK161-Y
Q301~303,606,608, Q701,702,704,705	2SC2458
Q304,605,607,703	2SA1048
Q706,707,801,802	2SC2458
D101~103	1SV147
D201,202,301,403,404, D701~709,801,802	1S1555
D302,601~604,606	S5566
D401,402	SVC321C2/D2
D605	RD5.6EB

SCHEMATIC DIAGRAM (FOR HEZ AND YP TYPES)
TX-950/HEZ

1. RESISTORS:
Indicated in Ω, ¼W, ⅛W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M); ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
: DC voltage (V) at FM
Value in ( ) is DC voltage at AM
mA : DC current at no input signal
mV: Signal voltage at FM 400Hz · 75kHz DEV. or AM 400 Hz 30 % MOD.

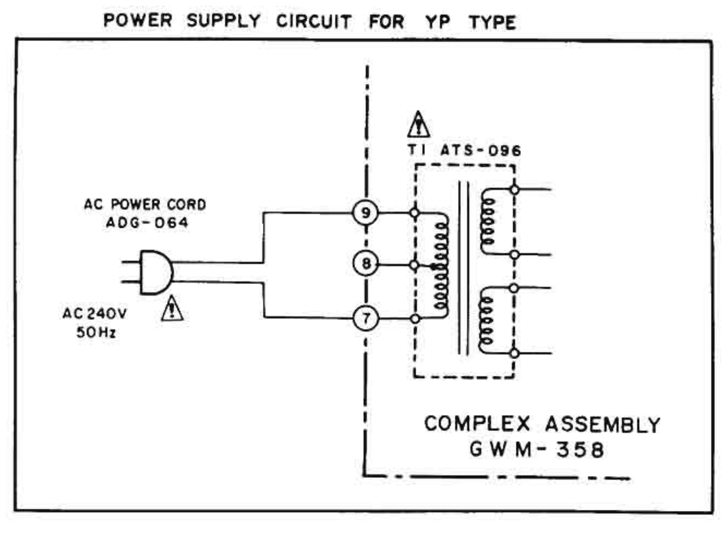
4. OTHERS:
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

SWITCHES:
S1 : POWER ON — STAND BY
S3~10 : STATION CALL
S11 : MEMORY
S12 : DOWN TUNING
S13 : UP TUNING
S15 : AM
S16 : FM

The underlined indicates the switch position.

Power Supply Circuit for TX-950/YP



2. FOR S AND S/G TYPES

NOTES:

- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

  Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560Ω	*56 × 10¹*	*561 .....*	*RD¼PS* $\boxed{5}\boxed{6}\boxed{1}$ *J*
47kΩ	*47 × 10³*	*473 .....*	*RD¼PS* $\boxed{4}\boxed{7}\boxed{3}$ *J*
0.5Ω	*0R5 ....*		*RN2H* $\boxed{0}\boxed{R}\boxed{5}$ *K*
1Ω	*010 ....*		*RS1P* $\boxed{0}\boxed{1}\boxed{0}$ *K*

  Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 × 10¹*	*5621 ....*	*RN¼SR* $\boxed{5}\boxed{6}\boxed{2}\boxed{1}$ *F*

- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★ .*

  ★★ GENERALLY MOVES FASTER THAN ★

  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

The S and S/G types are the same as the KU type with the exception of the following sections.

Contrast of Miscellaneous Parts

Mark	Symbol & Description		Part No.			Remarks
			KU type	S type	S/G type	
		Complex assembly	GWM-346	GWM-357	GWM-357	
⚠ ★★	FU601	Fuse (0.8A/125V)	AEK-118	...	...	
		Operating Instructions (Spanish)	...	ARC-068	...	
		Packing case	AHE-332	AHE-354	AHE-354	
⚠		AC power cord	ADG-073	ADG-072	ADG-072	

Complex Assembly (GWM-357)

The complex assembly GWM-357 (for S and S/G types) is the same as the GWM-346 (for the KU type) with the exception of the following sections.

Mark		Symbol & Description		Part No.		Remarks
				GWM-346	GWM-357	
		R616	Carbon composition	ACN-140	...	
⚠	★	T1	Power transformer	ATS-095	ATS-097	
⚠	★★	S2	Line voltage selector	...	AKX-505	

COMPLEX ASSEMBLY (GWM-357)

IC201	PA3001-A
IC301	HA12016
IC401	LA1247
IC601	NJM78M13A
IC701	TD6104P
IC702	TC9157P
IC703	TD6301AP

Q101	2SK241-Y
Q102	2SC2786-L
Q103,201	2SC2668
Q104,105	2SK161-Y
Q301~303,606,608, Q701,702,704,705	2SC2458
Q304,605,607,703	2SA1048
Q305,306	2SK246
Q706,707,801,802	2SC2458

D101~103	1SV147
D201,202,301,403,404, D701~709,801,802	1S1555
D302,601~604,606	S5566
D401,402	SVC321C2
D605	RD5.6EB

SCHEMATIC DIAGRAM (FOR S AND S/G TYPES)

TC401,402	ACM-015	L104,105,201,202	ATH-049	T401	ATB-099
R720,721	ACN-142				
VR301	VRTB6VS332	L401	ATB-100	F201	ATF-119
				F202	ATF-107
C713	ACH-243			F301	ATF-146
				F401	ATF-133
L101	ATC-192	T101	ATC-194	S3~13,S15,16	ASG-711
L102	ATC-193	T102	ATE-063	X701	ASS-025
L103	ATC-214	T201	ATE-052	V1	AAV-017
				S17	ASH-034

IC201 PA3001-A
IC301 HA12016
IC401 LA1247
IC601 NJM78M13A
IC701 TD6104P
IC702 TC9157P
IC703 TD6301AP

Q305,306 2SK246

Q101 2SK241-Y
Q102 2SC2786-L
Q103,201 2SC2668
Q104,105 2SK161-Y
Q301~303, 606,608,
Q701,702,704,705
2SC2458
Q304, 605,607,703
2SA1048
Q706,707,801,802
2SC2458

D101~103 1SV147
D201,202,301,403,404,
D701~709
D801,802
1S1555
D302,601~604,606
S5566
D401,402
SVC321C2/D2

D605 RD5.6EB

1. RESISTORS:
Indicated in Ω, ¼W, ⅛W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M); ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
: DC voltage (V) at FM
Value in ( ) is DC voltage at AM
mA : DC current at no input signal
mV: Signal voltage at FM 400Hz · 75kHz DEV. or AM 400 Hz 30 % MOD.

4. OTHERS:
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

SWITCHES:
S1 : POWER ON — STANDBY
S2 : LINE VOLTAGE SELECTOR 110V — 120V — 220V — 240V
S3~10 : STATION CALL
S11 : MEMORY
S12 : DOWN TUNING
S13 : UP TUNING
S15 : AM
S16 : FM
S17 : CHANNEL STEP
AM STEP FREQUENCY 10 kHz ↔ 9 kHz
DE-EMPHASIS 75 μsec ↔ 50 μsec

The underlined indicates the switch position.

3. FOR SS TYPE

NOTES:

- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*
  Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).
  560Ω 56 × 10¹ 561 ..... RD¼PS 5 6 1 J
  47kΩ 47 × 10³ 473 ..... RD¼PS 4 7 3 J
  0.5Ω 0R5 .... RN2H 0 R 5 K
  1Ω 010 .... RS1P 0 1 0 K
  Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).
  5.62kΩ 562 × 10¹ 5621 .... RN¼SR 5 6 2 1 F
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★*
  ★★ GENERALLY MOVES FASTER THAN ★
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

The SS type is the same as the KU type with the exception of the following sections.

Contrast of Miscellaneous Parts

Mark	Symbol & Description	Part No.		Remarks
		KU type	SS type	
	Complex assembly	GWM-346	GWM-364	
⚠ ★★	FU601 Fuse (0.8A/125V)	AEK-118	...	
	Packing case	AHE-332	AHE-354	
⚠	AC power cord	ADG-073	ADG-072	

The complex assembly GWM-364 (for SS type) is the same as the GWM-346 (for KU type) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		GWM-346	GWM-364	
★★	Q305, Q306	2SK246	...	
⚠ ★	T1 Power transformer	ATS-095	ATS-097	
	L103 FM OSC coil	ATC-214	ATC-215	
⚠ ★★	S2 Line voltage selector	...	AKX-505	
★★	S17 Slide switch	ASH-034	...	
	C119	CCDTH 180J 50	CCD TH 120J 50	
	C317, C318	CKDYB 561K 50	...	
⚠	R616 Carbon composition	ACN-140	...	
	R330, R331	RD1/8PM □□□J	...	

COMPLEX ASSEMBLY (GWM-364)

Q605 Q606 Q101 Q103 Q701 Q104 Q105 Q702 Q201 IC701 Q102 IC702 IC201 Q801 Q704 Q705 IC401 Q301 Q703 IC301 Q802 Q303 Q304 Q302 VR301 Q607 Q608 Q707 Q706 IC601 IC703

IC201 PA3001-A
IC301 HA12016
IC401 LA1247
IC601 NJM78M13A
IC701 TD6104P
IC702 TC9157P
IC703 TD6301AP

Q101 2SK241-Y
Q102 2SC2786-L
Q103, 201 2SC2668
Q104, 105 2SK161-Y
Q301~303, 606, 608, Q701, 702, 704, 705 2SC2458

Q304, 605, 607, 703 2SA1048
Q706, 707, 801, 802 2SC2458

D101~103 1SV147
D201, 202, 301, 403, 404, D701~709, 801, 802 1S1555
D302, 601~604, 606 S5566

D401, 402 SVC321C2/D2
D605 RD5.6EB

SCHEMATIC DIAGRAM (FOR SS TYPE)

1. RESISTORS:
Indicated in Ω, ¼W, ⅛W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M); ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
▭ : DC voltage (V) at FM
Value in ( ) is DC voltage at AM
⇐ mA : DC current at no input signal
mV : Signal voltage at FM 400Hz · 75kHz DEV. or AM 400 Hz 30 % MOD.

4. OTHERS:
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
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This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

SWITCHES:
- S1 : POWER <u>ON</u> — STAND BY
- S2 : LINE VOLTAGE SELECTOR 110V — 120V — <u>220V</u> — 240V
- S3~10 : STATION CALL
- S11 : MEMORY
- S12 : DOWN TUNING
- S13 : UP TUNING
- S15 : AM
- S16 : FM

The underlined indicates the switch position.