

# QP-350-DU2 Tune up Procedure

## 1 Required Test Instrument

Radio Communication Test Set 1 set
Scanner 1 set
1A/5V Power Supply 1 set
Digital Voltmeter 1 set
3A Ammeter 1 set

## 2 Adjustment process

### VCO

Item	Condition	Measurement		Adjustment		Specification/
		Test	Terminal	Parts	Method	Remarks
		Instrument				
1. Setting	Power supply					
	voltage					
2.Transmit	1. CH: TX high	Digital	CV	TC301	adjustment	
VCO lock	2. CH:TX Low	Voltmeter			Check	
voltage						
3.Receive	1. CH: RX high					
VCO lock	2. RX low			TC302	Check	
voltage						

### **Transmitter**

Item		Condition	Test Instrument	Method	Purpose
	Adjust a	Enter the adjust	Radio	Adjust VR1	Frequency Error≤
Group	channel	mode; Turn to CH1;	Communication		100Hz
1		TX mode.	Test Set;		
			TX Test		
	1. TX	Enter the adjust		PTT key	Adjust power to:
	power Low	mode. Turn to CH1.		(increase)	0.5W±0.1W
		Adjust at 5 point		SK1 key	
		(wideband).		(decrease)	



2. CDCSS	Enter the adjust		PTT key	
balance	mode. Turn to CH3.		(increase)	
	Adjust at 3 point		SK1 key	
	(wideband), 1 point	Radio	(decrease)	
	(medium band) and	Communication		
	1 point	Test Set		
	(narrowband)	TX TEST		
	respectively.	HPF: 20HZ		
3. CDCSS	Enter the adjust	LPF: 300HZ	PTT key	Adjust deviation to
deviation	mode. Turn to CH3.		(increase)	750Hz (wideband),
	Adjust at 3 point		SK1 key	600Hz (medium
	(wideband), 1 point		(decrease)	band) and 400Hz
	(medium band) and		,	(narrowband)
	1 point			respectively.
	(narrowband)			. ,
	respectively.			
4. CTCSS	Enter the adjust		PTT key	
(67.0Hz)	mode. Turn to CH4.		(increase)	
deviation	Adjust at 3 point		SK1 key	
Low	(wideband), 1 point		(decrease)	
	(medium band) and		(400.0400)	
	1 point			
	(narrowband)			
	respectively.			
5. CTCSS	Enter the adjust		PTT key	
(136.5Hz)	mode. Turn to CH5.		(increase)	
deviation	Adjust at 3 point		SK1 key	
Center	(wideband), 1 point		(decrease)	
	(medium band) and		(400.0400)	
	1 point			
	(narrowband)			
	respectively.			
6. CTCSS	Enter the adjust		PTT key	
(254.1Hz)	mode. Turn to CH6.		(increase)	
deviation	Adjust at 3 point		SK1 key	
High	(wideband), 1 point		(decrease)	
i ligii	(medium band) and		(accidase)	
	1 point			
	•			
	(narrowband)			
	respectively.			



	7. Transmit	Enter the adjust	Radio	PTT key	Adjust deviation to
	Audio	mode. Turn to CH7.	Communication	(increase)	4KHz (wideband),
	Deviation	Adjust at 3 point	Test Set	SK1 key	3.2KHz (medium
		(wideband), 1 point	HPF: 20Hz	(decrease)	band) and 2KHz
		(medium band), 1	LPF: 15KHz		(narrowband)
		point (narrow band).	1KHz		respectively.
			120mV		
	8. 2 Tone	Enter the adjust	Radio	PTT key	Adjust deviation to
	deviation	mode. Turn to CH8.	Communication	(increase)	3.2KHz (wideband),
		Adjust at 1 point	Test Set	SK1 key	2.5KHz (medium
		(wideband), 1 point	TX Test	(decrease)	band) and 1.8KHz
		(medium band), 1	HPF: 20Hz	,	(narrowband)
		point (narrow band).	LPF: 15KHz		respectively.
	9. DTMF	Enter the adjust	No modulation	PTT key	Adjust deviation to
	deviati	mode. Turn to CH9.	signal.	(increase)	3.2KHz (wideband),
	on	Adjust at 1 point	3 3	SK1 key	2.5KHz (medium
	0.11	(wideband), 1 point		(decrease)	band) and 1.8KHz
		(medium band), and		(400,0400)	(narrowband)
		1 point (narrow			respectively.
		band).			respectively.
	10. MSK	Enter the adjust		PTT key	Adjust deviation to
	deviati	mode. Turn to		(increase)	3.2KHz (wideband),
	on	CH10. Adjust at 3			2.5KHz (medium
		point (wideband), 1		(decrease)	band) and 1.8KHz
		point (medium			(narrowband)
		band), 1 point			respectively.
	44 1/01/	(narrow band).	Dadia	0	Madulatian simple
	11. VOX	Enter the adjust	Radio	Save	Modulation signal:
	GAIN1	mode. Turn to	Communication		1KHz, 45mv
		CH11. Adjust at 1	Test Set		Press PTT to save;
		point (wideband).	TX TEST		
	12. VOX	Enter the adjust	HPF: 20HZ	Save	Modulation signal:
	GAIN5	mode. Turn to	LPF: 15KHZ		1KHz, 15mv
		CH12. Adjust at 1			Press PTT to save;
		point (wideband).			
	13. TX	Enter the adjust	Radio	PTT key	Adjust power to
	power	mode. Turn to	Communication	(increase)	2±0.1W
	HIGH	CH13. Adjust at 5	Test Set	SK1 key	VHF: 2W,
		point (wideband).	TX TEST	(decrease)	UHF: 2W
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	14. TX voltage Low	Enter the adjust mode. Turn to CH14. Adjust at 1	Save	Adjust voltage to 3.0V,press PTT to
		point (wideband).		save

### Receiver

Item		Condition	Test Instrument	Method	Purpose
Group 2	1. RX sensitivity	Enter the adjust mode. Turn to CH1. Adjust at 5 point (wideband).	Radio Communication Test Set RX TEST HPF: 300HZ LPF: 3KHZ	PTT key SK1 key	Adjust level to 119dBm. SINAD≥12dB
	2. RX volume	Enter the adjust mode. Turn to CH2. Adjust 1 point at wideband, medium band and narrowband respectively.		PTT key (Increase) SK1 key (Decrease	When Max. volume is set, adjust AC level to 1W (16 Ω), single input 2.5V, dual input 5V
	3. Squelch Level 3 (OPEN)	Enter the adjust mode. Turn to CH3. Adjust at 5 point (wideband), 1 point (medium band) and 1 point (narrowband) respectively.		Save	Adjust level to -123dBm, press PTT to save
	4. Squelch Level 3 (SQUELCH)	Enter the adjust mode. Turn to CH4. Adjust at 5 point (wideband), 1 point (medium band) and 1 point (narrowband) respectively.		Save	Adjust level to -125dBm, press PTT to save
	5. Squelch Level 9 (OPEN)	Enter the adjust mode. Turn to CH5. Adjust at 5 point (wideband), 1 point (medium band) and 1 point (narrowband) respectively.		Save	Adjust level to -117dBm, press PTT to save



## **Design Document**

6. Squelch	Enter the adjust	Save	Adjust level to
Level 9	mode. Turn to CH6.		-119dBm, press
(SQUELCH)	Adjust at 5 point		PTT to save
	(wideband), 1 point		
	(medium band) and		
	1 point (narrowband)		
	respectively.		
7. RX voltage	Enter the adjust	Save	Adjust power
Low	mode. Turn to CH7.		supply voltage to
	Adjust at 1 point		3.1V, press PTT to
	(wideband).		save

Note: AF deviation of the receiver is 3KHz (wideband), 2.5KHz(medium band) and 1.5KHz (narrowband)