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You can read the recommendations in the user guide, the technical guide or the installation guide for ICOM IC-91AD. You'll find the answers to all your questions on the ICOM IC-91AD in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual ICOM IC-91AD
User guide ICOM IC-91AD
Operating instructions ICOM IC-91AD
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Instruction manual ICOM IC-91AD



VHF/UHF FM TRANSCEIVER
IC-91A
VHF/UHF DIGITAL TRANSCEIVER
IC-91AD

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

WARNING: MODIFICATION OF THIS DEVICE TO RECEIVE CELLULAR RADIO TELEPHONE SERVICE SIGNALS IS PROHIBITED UNDER FCC RULES AND FEDERAL LAW.

Icom Inc.



▲ The above photo shows IC-91AD.



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Manual abstract:

Many hours of research and development went into the design of your IC-91A/91AD, following Icom's philosophy of "technology first." The IC-91A/91AD VHF/UHF FM TRANSCEIVER is designed with Icom's superior technology and craftsmanship combining traditional analog technologies with the new digital D-STAR technologies for a balanced packaged. With proper care, this product should provide you with years of trouble-free operation. We want to take a couple of moments of your time to thank you for making your IC-91A/91AD your radio of choice, and hope you agree with Icom's philosophy of "technology first." FEATURES DV mode (Digital voice + Low-speed data communication) operation is ready GPS receiver connection Text message and call sign exchange (Optional UT-121 DIGITAL UNIT is required for IC-91A.) Simple band scope Dualwatch operation Optional PC remote control **IMPORTANT READ ALL INSTRUCTIONS carefully and completely before using the transceiver. EXPLICIT DEFINITIONS DEFINITION Personal injury, fire hazard or electric shock R WARNING! may occur. CAUTION NOTE i Equipment damage may occur. Recommended for optimum use. No risk of personal injury, fire or electric shock.**

@@@This device emits Radio Frequency (RF) energy. Caution should be observed when operating this device. @@@The transceiver will perform best if the microphone is 5 to 10 cm (2 to 4 inches) away from the lips and the transceiver is vertical. **RWARNING! NEVER operate the transceiver with a earphone, headphones or other audio accessories at high volume levels. Hearing experts advise against continuous high volume operation.**

If you experience a ringing in your ears, reduce the volume level or discontinue use. **RWARNING! NEVER operate the transceiver while driving a vehicle. Safe driving requires your full attention-- anything less may result in an accident. NEVER expose the transceiver to rain, snow or any liquids. The transceiver may be damaged.**

NEVER operate or touch the transceiver with wet hands. This may result in an electric shock or damage the transceiver. DO NOT operate the transceiver near unshielded electrical blasting caps or in an explosive atmosphere. DO NOT push the PTT when not actually desiring to transmit. BE CAREFUL! The transceiver will become hot when operating it continuously for long periods. AVOID using or placing the transceiver in direct sunlight or in areas with temperatures below 20°C (4°F) or above +60°C (+140°F). Place the unit in a secure place to avoid inadvertent use by children. AVOID the use of chemical agents such as benzine or alcohol when cleaning, as they can damage the transceiver's surfaces. For U.S.

A. only **NEVER connect the transceiver to a power source of more than 16 V DC. This will ruin the transceiver. CAUTION!:** Changes or modifications to this device, not expressly approved by Icom Inc., could void your authority to operate this device under FCC regulations. **NEVER connect the transceiver to a power source using reverse polarity. This will ruin the transceiver. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 ii TABLE OF CONTENTS FOREWORD ...**

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(p.

112) etc. · During DV mode operation, selects break-in operation mode. · While pushing [PTT], this key sends the DTMF code "9." (p. 51) · Inputs digit '0' for frequency input, memory channel selection, · During DV mode operation, set "CQCQCQ" for station's call sign for operation. etc. · While pushing [PTT], this key sends the DTMF code "0." · Inputs MHz digit for frequency input. · While pushing [PTT], this key sends the DTMF code "F (#)." · Select DTMF memory mode.

(p. 103) · During DV mode operation, to turn EMR mode operation ON, keep pushing and holding until 3 short and 1 long beeps are emitted. (p. 56) 2 · During DV mode operation, selects the record track for voice · Selects the operating mode. memory.

(p. 62) · While pushing [PTT], this key sends the DTMF code "E ()." 5 2 PANEL DESCRIPTION I Function display · Single band indication q !7 !6 !5 !4 !3 w e r ty -DUP DSQL DV PRIO B MemoName PSKIP LOW ATT !2 439 706 25 μ !1 i e EMR u i o !0 q BATTERY INDICATOR (pgs. 10, 12) " " (battery indicators) appear when the Li-Ion battery pack is attached. " " appears when the battery pack must be charged.

The indicators show " , " " and " " in sequence while charging the attached battery pack. w DUPLEX INDICATORS (p. 29) "+DUP" appears when plus duplex, "DUP" appears when minus duplex is selected. e PRIORITY WATCH INDICATOR (p. 83) Appears when priority watch is in use. r TONE INDICATORS · While operating in FM mode; "TONE" appears while the subaudible tone encoder is in use. (pgs. 29, 106) "TSQL" appears while the tone squelch function is in use. (p. 110) "DTCS" appears while the DTCS squelch function is in use.

(p. 110) "S" appears with the "TSQL" or "DTCS" indicator while the pocket beep function (with CTCSS or DTCS) is in use. (p. 111) · While operating in DV mode; "DSQL" appears while the call sign squelch function is in use. (p. 110) "CSQL" appears while the digital code squelch function is in use. (p. 110) 000 ·

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i FREQUENCY READOUT Displays a variety of information, such as operating frequency, set mode contents, memory names. · The decimal point blinks during scan. 2 !1 S/R F METER Shows the relative signal strength while receiving signals. Shows the output power level while transmitting. (p. 24) !2 ATTENUATOR INDICATOR (p. 22) Appears when the RF attenuator is in use. !3 LOW POWER INDICATOR (p. 24) "LOW" appears when low power is selected. No indicator appears when high power is selected. !4 MEMORY INDICATOR (p. 64) Appears when memory mode is selected. !5 NAME INDICATOR (p. 70) During memory mode operation, the programmed memory or memory bank name is displayed. !6 MAIN BAND INDICATOR (p.

14) Shows which operating band, "A" or "B," is selected for the main band. !7 OPERATING MODE INDICATOR (p. 21) Shows the selected operating mode. · DV, FM, FM-N, WFM and AM are available, depending on operating band. 2 o SKIP INDICATORS (pgs. 79, 80) "SKIP" appears when the selected memory channel is set as a skip channel. "P SKIP" appears when the displayed frequency is set as a skip frequency. !0 MEMORY CHANNEL NUMBER INDICATOR Shows the selected memory channel number. (pgs. 64, 65) "C" appears when the call channel is selected.

(pgs. 16, 65) "WX" appears when the weather channel is selected. (pgs. 16, 114) "TV" appears when the TV channel is selected. (pgs. 16, 28) !8 SIMPLE BAND SCOPE INDICATOR (p. 23) When the simple band scope function is in use, shows the band conditions. 7 3 BATTERY CHARGING I Caution Misuse of Lithium-Ion batteries may result in the following hazards: smoke, fire, or the battery may rupture. Misuse can also cause damage to the battery or degradation of battery performance. · R DANGER! Use and charge only specified Icom battery packs with Icom radios.

Only Icom battery packs are tested and approved for use with Icom radios. Using third-party or counterfeit battery packs may cause smoke, fire, or cause the battery to burst. · R DANGER! DO NOT expose the battery to rain, snow, seawater, or any other liquids. Do not charge or use a wet battery. If the battery gets wet, be sure to wipe it dry before using. The battery is not waterproof. · R DANGER! NEVER incinerate an used battery pack since internal battery gas may cause it to rupture, or may cause an explosion. · R DANGER! NEVER solder the battery terminals, or NEVER modify the battery pack. This may cause heat generation, and the battery may burst, emit smoke or catch fire. · R DANGER! Use the battery only with the transceiver for which it is specified.

Never use a battery with any other equipment, or for any purpose that is not specified in this instruction manual. · R DANGER! If fluid from inside the battery gets in your eyes, blindness can result. Rinse your eyes with clean water, without rubbing them, and see a doctor immediately. · WARNING! Immediately stop using the battery if it emits an abnormal odor, heats up, or is discolored or deformed. If any of these conditions occur, contact your Icom dealer or distributor. · WARNING! Immediately wash, using clean water, any part of the body that comes into contact with fluid from inside the battery. D Battery caution · R DANGER! DO NOT hammer or otherwise impact the battery. Do not use the battery if it has been severely impacted or dropped, or if the battery has been subjected to heavy pressure. Battery damage may not be visible on the outside of the case. Even if the surface of the battery does not show cracks or any other damage, the cells inside the battery may rupture or catch fire.

· R DANGER! NEVER use or leave battery pack in areas with temperatures above +60°C (+140°F). High temperature buildup in the battery, such as could occur near fires or stoves, inside a sun heated car, or in direct sunlight may cause the battery to rupture or catch fire. Excessive temperatures may also degrade battery performance or shorten battery life.



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8 BATTERY CHARGING 3 · WARNING! NEVER put the battery in a microwave oven, high-pressure container, or in an induction heating cooker. This could cause a fire, overheating, or cause the battery to rupture.

· CAUTION! Always use the battery within the specified temperature range, 20°C to +60°C (4°F to +140°F). Using the battery out of its specified temperature range will reduce the battery's performance and battery life. · CAUTION! Shorter battery life could occur if the battery is left fully charged, completely discharged, or in an excessive temperature environment (above +50°C; +122°F) for an extended period of time. If the battery must be left unused for a long time, it must be detached from the radio after discharging. You may use the battery until the battery indicator shows half-capacity, then keep it safely in a cool dry place with the temperature between 20°C to +20°C (4°F to +68°F).

D Charging caution · R DANGER! NEVER charge the battery pack in areas with extremely high temperatures, such as near fires or stoves, inside a sun heated car, or in direct sunlight. In such environments, the safety/protection circuit in the battery will activate, causing the battery to stop charging. · WARNING! DO NOT charge or leave the battery in the battery charger beyond the specified time for charging. If the battery is not completely charged by the specified time, stop charging and remove the battery from the battery charger. Continuing to charge the battery beyond the specified time limit may cause a fire, overheating, or the battery may rupture. · WARNING! NEVER insert the transceiver (battery attached to the transceiver) into the charger if it is wet or soiled. This could corrode the battery charger terminals or damage the charger. The charger is not waterproof. · CAUTION! DO NOT charge the battery outside of the specified temperature range: 0°C to +35°C (+32°F to +95°F). Icom recommends charging the battery at +20°C (+68°F).

The battery may heat up or rupture if charged out of the specified temperature range. Additionally, battery performance or battery life may be reduced. 3 9 3

BATTERY CHARGING 1 Regular charging Prior to using the transceiver for the first time, the battery pack must be fully charged for optimum life and operation. · BC-167A/D D Battery indicators The indicators show " ", " " and " " in sequence while charging, and both indicators disappear when completely charged. Transceiver to AC outlet · CP-12L (Optional) D Charging note · Be sure to turn the transceiver power OFF. Otherwise the battery pack will not be charged completely or takes longer charging time periods. to [DC IN] to cigarette lighter socket (12 V DC) · CP-19R (Optional) · External DC power operation becomes possible when using an optional CP-12L, CP-19R or OPC-254L. The attached battery pack is also charged simultaneously, except during transmit. (see p. 11 for more details) · The external DC power supply voltage must be within 1016 V to charge the battery pack and operation when using an optional OPC-254L.

Turn power OFF while charging the battery pack. · Charging time period: Approx. 6 hours · OPC-254L (Optional) to 12 V DC (power supply) Black: _ White: + 10 BATTERY CHARGING 3 I Rapid charging The optional BC-139 provides rapid charging of the battery pack. · Charging period: 2.5 hours (with BP-217) Transceiver (with battery pack) Battery pack Turn power OFF.

to AC outlet 3 D Charging note · Be sure to turn the transceiver power OFF. Detach the battery pack from the transceiver then charge the battery pack by itself, or charge the battery with regular charging when the transceiver power cannot be turned OFF. Otherwise the battery pack will not be charged (charging indicator on the BC-139 blinks orange). Check the orientation. A Adapter (supplied with BC-139) Charging terminal · The desktop charger, BC-139, can only be charged BP-217.

Other types of rechargeable battery, Ni-Cd or Ni-MH, cannot be charged. · If the charging indicator blinks orange, there may be a problem with the battery pack (or charger). Reinsert the battery pack or contact your dealer. · The optional CP-12L, CP-19R and OPC-254L can be used instead of the supplied AC adapter (BC-123). Connect one of these to the [AC ADAPTER] jack in this case. BC-123 (supplied with BC-139) to [AC ADAPTER] Charging indicator Charging : Orange Finished : Green BC-139 (optional) Desktop charger 11 3 BATTERY CHARGING 1 Optional battery case Install 2 R6 (AA) size alkaline batteries into the optional BP-216 BATTERY CASE. I Battery information D Battery life The transceiver operates with the BP-217 as follows. However, when operating in DV mode, operating time may be shortened by one-half hour. · VHF band : Approx. 5 hours · UHF band : Approx.

4.5 hours (Tx: Rx: Stand-by=1: 1: 8) · Be sure to observe the correct polarity. A built-in step-up convertor in the BP-216 increases the voltage to 5 V DC. Approx. 100 mW of output power is possible with the BP216 operation. Also, no transmit output power selection is available. Keep battery contacts clean. It's a good idea to clean battery terminals once a week. Even when the transceiver power is OFF, a slight current still flows in the circuits. Remove the battery pack or case from the transceiver when not using it for a long time.

Otherwise, the battery pack or installed batteries will become exhausted. D Battery indicator The battery indicator, " ", appears only when the BP-217 is attached to the transceiver. The battery indicator does not appear when turning power ON after the charging is completed without disconnecting the battery charger or external DC power. Indication Battery condition The battery has ample capacity. The battery is nearing exhaustion.

Charging is necessary. D Battery information The batteries may seem to have low capacity when used in low temperatures such as 10°C (+14°F) or below. Keep the battery case or pack warm in this case. D Battery replacement When the batteries become exhausted, the function display may blink or have a lower contrast. In these cases, replace all batteries with new, same brand, alkaline batteries.

12 BATTERY CHARGING 3 I External DC power operation An optional cigarette lighter cable (CP-12L or CP-19R; for 12 V cigarette lighter socket) or external DC power cable (OPC-254L) can be used for external power operation. Transceiver · CP-12L (Optional) 3 D Operating note · Power supply range is between 10.016.0 V DC. NEVER CONNECT OVER 16 V DC directly into the [DC IN] jack of the transceiver. · BE SURE to use CP-12L, CP-19R or OPC-254L when connecting a regulated 12 V DC power supply.



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Use an external DC-DC converter to connect the transceiver through optional CP-12L, CP-19R or OPC-254L to a 24 V DC power source. · The voltage of the external power supply must be within 1016 V DC when using either CP-12L, CP-19R or OPC254L, otherwise, use the battery pack. · Up to 5 W (approx.) of maximum output power is provided with the external DC power operation, however, when the supplied voltage exceeds 14 V, the built-in protection circuit activates to reduce the transmit output power to 0.

5 W (approx.). to [DC IN] to cigarette lighter socket (12 V DC) · CP-19R (Optional) · OPC-254L (Optional) to 12 V DC (power supply) Black: _ White: + ·

Disconnect the power cables from the transceiver when not using it. Otherwise, the vehicle battery will become exhausted. · The power save function is deactivated automatically during external DC power operation. 13 4 FREQUENCY AND CHANNEL SETTING I Main band selection The IC-91A/91AD has two independent operating bands; A band (VFO A) and B band (VFO B). A band (VFO A) can operate 0.495 MHz to 999.990 MHz*, and B band (VFO B) can operate 118 MHz to 174 MHz and 350 MHz to 470 MHz. *Some frequency ranges are blocked for the USA version by regulation.

D How to change the main band Push [MAIN/DUAL] to toggle between A and B band. Push and hold [MAIN/DUAL] for 1 sec. to turn the dualwatch operation ON and OFF. · While in dualwatch operation, the display indicates A band in the upper half and B band in the lower half. NOTE: When in dualwatch mode, transmission is available from the MAIN band only.

Single band operation · Selecting A band +DUP DTCS FM PRIO WX EMR During dualwatch operation, push [MAIN/DUAL] to select A band or B band as the main operating band alternately. Dualwatch operation · Selecting upper side as main band PRIO 146 010 25 μ 000 PRIO EM 440 00050 μ 000 FM FM +DUP DTCS +DUP DTCS W PS A MemoName P LOW ATT 146 010 25 μ SKIP W PS 000 Push Push · Selecting B band +DUP DTCS FM PRIO WX EMR

Push for 1 sec. · Selecting lower side as main band PRIO 146 010 25 μ 000 PRIO EM 440 00050 μ 000 FM FM +DUP DTCS +DUP DTCS W PS B MemoName P LOW ATT 440 000 25 μ SKIP W PS 000 14 FREQUENCY AND CHANNEL SETTING 4 I Mode selection D VFO mode VFO mode is used to set the desired frequency. Push [VFO] to select VFO mode. · VFO mode indication +DUP DTCS FM PRIO WX EMR D Memory mode Memory mode is used for operation on memory channels which store programmed frequencies.

q Push [MR] to select memory mode. μ · "μ " appears when memory mode is selected. 4 A MemoName P LOW ATT 146 010 25 μ · Memory mode indication +DUP DTCS FM PRIO WX EMR SKIP 000 A MemoName P LOW ATT 146 010 25 μ SKIP 000 Appear What is VFO? VFO is an abbreviation of Variable Frequency Oscillator. Frequencies for both transmitting and receiving are generated and controlled by the VFO. w Rotate [DIAL] to select the desired memory channel. · Only programmed memory channels can be selected. · Enter the memory channel directly to select the desired memory channel. (p. 64) · See p. 66 for memory programming details.

15 4 FREQUENCY AND CHANNEL SETTING D Call/TV*/Weather channels Call channels are used for quick recall of most-often used frequencies.

Appears only when TV channels are programmed via the optional RS-91. Also available for A band operation only. Available for the USA version only. q Push [CALL] several times to select call channels/TV channels (A band only)/Weather channels. · Call/TV/Weather channels can be selected in sequence. I Operating band selection The transceiver can receive the AM broadcast, HF bands, 50 MHz, FM broadcast, VHF air, 144 MHz, 300 MHz, 400 MHz or 800 MHz bands. (Some bands are not selectable for B band operation. See next page for details.) In VFO mode, push [BAND] several times to select the desired frequency band.

· If the other than VFO mode is selected, such as a memory channel/call channel/TV channel/Weather channel, push [VFO] to select VFO mode first, then push [BAND] to select the desired band. w Rotate [DIAL] to select the desired channel. · Call channel indication [DIAL] +DUP DTCS FM PRIO WX EMR A MemoName P LOW ATT 146 010 μ 25 C0 While pushing and holding [BAND], rotating [DIAL] also selects frequency band. [DIAL] +DUP DTCS FM PRIO WX EMR SKIP · TV channel indication +DUP DTCS WFM PRIO WX EMR A A MemoName P LOW ATT 10 ch μ 25 SKIP MemoName P LOW ATT 146 010 25 μ SKIP 000 TV · Weather channel indication +DUP DTCS WFM PRIO WX EMR A MemoName P LOW ATT 1 25 SKIP μ WX Available frequency bands are different depending on version. See the specification for details.

(pgs. 120, 121) *Some frequency ranges are blocked for the USA version by regulation. 16 FREQUENCY AND CHANNEL SETTING · Available frequency bands · A band +DUP DTCS AM PRIO WX EMR +DUP DTCS AM PRIO WX EMR +DUP DTCS FM PRIO WX EMR +DUP DTCS WFM PRIO WX EMR 4 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 17 A MemoName P AM broadcast band 001 620 25 A SKIP MemoName P HF band 005 000 25 A SKIP MemoName P 50 MHz band 051 000 25 A SKIP MemoName P FM broadcast band 076 000 25 SKIP +DUP DTCS FM PRIO WX EMR A MemoName P 800 MHz band 850 000 +DUP DTCS FM PRIO WX EMR 25 A SKIP MemoName P 146 010 144 MHz band +DUP DTCS AM PRIO WX EMR 25 A SKIP MemoName P VHF air band 118 000 25 SKIP +DUP DTCS FM PRIO WX EMR A MemoName P 400 MHz band 440 000 +DUP DTCS AM PRIO WX EMR 25 A SKIP MemoName P 300 MHz band 370 000 25 : Push : Rotating [DIAL] while pushing Initial frequencies shown differ according to version. SKIP · B band +DUP DTCS AM PRIO WX EMR A B MemoName P VHF air band 118 000 25 +DUP DTCS FM PRIO WX EMR A B SKIP MemoName P 144 MHz band 146 010 25 +DUP DTCS FM PRIO WX EMR A B SKIP MemoName P 300 MHz band 370 000 25 +DUP DTCS FM PRIO WX EMR A B SKIP MemoName P 400 MHz band 440 000 25 SKIP 4 FREQUENCY AND CHANNEL SETTING I Setting a tuning step The tuning step can be selected for each frequency band. The following tuning steps are available for the IC-91A/91AD.

· 5.0 kHz* · 6.25 kHz* · 8.33 kHz · 9.0 kHz · 10.0 kHz · 12.5 kHz · 15.0 kHz · 20.0 kHz · 25.0 kHz · 30.

0 kHz · 50.0 kHz · 100.0 kHz · 125.0 kHz · 200.0 kHz * Appears for below the 600 MHz bands only. Appears for the VHF air band only.



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Appears for the AM broadcast band only. I Setting a frequency D Using the dial q Push [VFO] to select VFO mode, if necessary. w Select the desired frequency band with [BAND]. · Or, while pushing and holding [BAND], rotate [DIAL] to select the desired frequency band.
e Rotate [DIAL] to select the desired frequency. · The frequency changes according to the preset tuning steps. See the left-hand side of the page to set the tuning step. · Push and hold [MHz](VFO) for 1 sec. then rotate [DIAL] to change the frequency in 1 MHz steps, or push and hold for 1 sec. again then rotate [DIAL] to change the frequency in 10 MHz steps. (Each pushing and holding for 1 sec. toggles 1 MHz or 10 MHz tuning steps. Push [MHz](VFO) to cancel it.) [DIAL] +DUP DTCS FM PRIO WX EMR D Tuning step selection q Push [VFO] to select VFO mode, if necessary.
w Push [BAND] to select the desired frequency band. · Or, while pushing and holding [BAND], rotate [DIAL] to select the desired frequency band. e Push and hold [TS](8) for 1 sec. to enter tuning step set mode. r Rotate [DIAL] to select the desired tuning step. t Push [TS](8) (or [VFO]) to return to VFO mode. [DIAL] +DUP DTCS FM PRIO WX EMR A 146 010 25 [DIAL] changes the frequency according to the selected tuning step. +DUP DTCS FM PRIO WX EMR A 146 010 μ 25 A 146 010 25 P SKIP SET-TS:5.0kHz 000 5 kHz tuning step After pushing and holding [MHz](VFO) for 1 sec., [DIAL] changes the frequency in 1 MHz/10 MHz steps.

18 FREQUENCY AND CHANNEL SETTING D Using the keypad The frequency can be directly set via numeric keys. · If a frequency outside the frequency range is entered, the previously displayed frequency is automatically recalled after editing last digit. 4 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 19 · Entering 146.520 MHz +DUP DTCS FM PRIO WX · Entering 79.3 MHz +DUP DTCS FM PRIO WX A 146 520 25 146 520 25 146 520 25 146 520 25 146 520 25 146 520 A 730 000 25 790 000 25 079 300 25 079 300 25 079 300 25 079 300 25 · Changing 100 kHz and below. Editing 146.520 MHz to 146.240 MHz +DUP DTCS FM PRIO WX q Push [VFO] to select VFO mode, if necessary. w Enter the desired frequency via the keypad. +DUP DTCS FM PRIO WX +DUP DTCS FM PRIO WX A A A 146 240 25 +DUP DTCS FM PRIO WX +DUP DTCS FM PRIO WX +DUP DTCS FM PRIO WX A A A 146 240 25 146 240 25 +DUP DTCS FM PRIO WX +DUP DTCS FM PRIO WX +DUP DTCS FM PRIO WX A A A +DUP DTCS FM PRIO WX +DUP DTCS FM PRIO WX +DUP DTCS FM PRIO WX +DUP DTCS FM PRIO WX A A A 146 240 25 +DUP DTCS FM PRIO WX +DUP DTCS FM PRIO WX A 25 A · Editing to 684 kHz +DUP DTCS FM PRIO WX Depending on the tuning step setting, the 1 kHz digit may not be acceptable as input.

In this case, enter "0" as 1 kHz digit, then rotate [DIAL] to set the desired frequency. A 000 684 25 5 BASIC OPERATION I Setting audio volume Rotate [VOL] to adjust the audio level. · If squelch is closed, push and hold [SQL] to verify the audio level. · The display shows the volume level while setting. +DUP DTCS FM PRIO WX EMR I Receiving Make sure charged battery pack (BP-217) or brand new alkaline batteries (BP-216) are installed (pgs. 1, 12). q Push and hold [PWR] for 1 sec. to turn power ON. w Rotate [VOL] to set the desired audio level. · The frequency display shows the volume level while setting.

See the section at right for details. e Set the receiving frequency. (p. 18) r Set the squelch level. (p. 21) · While pushing and holding [SQL], rotate [DIAL]. · The first click of [DIAL] indicates the current squelch level. · "LEVEL 1" is loose squelch (for weak signals) and "LEVEL 9" is tight squelch (for strong signals). · "AUTO" indicates automatic level adjustment by a noise pulse counting system. · Push and hold [SQL] to open the squelch manually.

[VOL] A MemoName P LOW ATT 146 010 25 μ SKIP 000 P SKIP μ 000 VOL Volume level indicator tWhen a signal is received: · Squelch opens and audio is output. · The S/RF-meter shows the relative signal strength level. e Set frequency r Set squelch level r Push for setting the squelch (Push to monitor) w Set audio level VOL VOL P SKIP μ 000 Minimum setting (no audio) P SKIP μ 000 Maximum setting q [PWR] e Select band 20 BASIC OPERATION 5 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 21 I Setting squelch level The squelch circuit mutes the received audio signal depending on the signal strength. The receiver has 9 squelch levels, a continuously open setting and an automatic squelch setting. While pushing and holding [SQL], rotate [DIAL] to select the squelch level. · "LEVEL 1" is loose squelch (for weak signals) and "LEVEL 9" is tight squelch (for strong signals). · "AUTO" indicates automatic level adjustment by a noise pulse counting system. · "OPEN" indicates continuously open setting. [DIAL] +DUP DTCS FM PRIO WX EMR I Operating mode selection Operating modes are determined by the modulation of the radio signals. The transceiver has total 5 operating modes (A band: FM, WFM and AM modes, B band FM, FM-N, AM and DV modes).

The mode selection is stored independently for each band and memory channel. Typically, AM mode is used for the AM broadcast stations (0.4951.620 MHz) and air band (118136.995 MHz), and WFM is used for FM broadcast stations (76107.

9 MHz). WFM mode cannot be selected above 810 MHz for USA version. Push and hold [MODE](REC) for 1 sec. several times to select the desired operating mode. · Display example FM A MemoName P LOW ATT 146 010 25 μ SKIP 000 A P SKIP 146 010 25 FM mode SQUELCH:AUTO μ 000 Automatic squelch P SKIP WFM A μ 000 176 000 25 WFM mode SQUELCH:LEVEL9 Maximum level AM A 118 000 25 AM mode 5 BASIC OPERATION I Monitor function This function is used to listen to weak signals without disturbing the squelch setting or to open the squelch manually even when mute functions such as the tone squelch are in use.

Push and hold [SQL] to monitor the operating frequency. · The 1st segment of the S-meter blinks. I Attenuator function The attenuator prevents a desired signal from distortion by very strong signals near the desired frequency or when very strong electric fields, such as from a broadcasting station, are near your location. The attenuation is about 10 dB. q Enter "ATTENUATOR" in set mode. (p. 88) MENU screen SET MODE ATTENUATOR (Push [MENU/LOCK]) (Rotate [DIAL], then push [i](5).) +DUP DTCS FM PRIO WX EMR A MemoName P LOW ATT 146 010 25 μ SKIP 000 w Rotate [DIAL] to select "ON" or "OFF".



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" e Push [i](5) (or [j](4)) to return to set mode, and push [MENU/LOCK] to return to frequency indication. · "ATT" appears on the function display when "ON" is selected.

[DIAL] +DUP DTCS FM PRIO WX EMR The 1st segment blinks The [SQL] key can be set to 'sticky' operation in set mode. See page 89 for details. A MemoName P LOW ATT 146 010 25 μ SKIP 000 Appears. [DIAL] [(2)/[(8) [i](5) [(6) 22 BASIC OPERATION 5 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 23 I Band scope The band scope function allows you to visually check a specified frequency range around the center frequency. About the sweep steps: The specified tuning step in each frequency band (in VFO mode) or programmed tuning step (in memory mode) is used during sweep. +DUP DTCS FM PRIO WX EMR D Continuous sweep q Set the desired frequency as band scope center frequency. w Push and hold [SCOPE](1) for 3 sec. to start continuous sweep. · 2 short beeps sound after 1 short and 1 long beeps. · Signal conditions (strengths) appear starting from the center of the range. A B 145 780 25 μ e Push and hold [SCOPE](1) for 1 sec. to cancel sweep. · Pushing [SQL] also cancels sweep. P SKIP 000 r Push [VFO] to return to normal operation. Band scope indication Sweep marker +DUP DTCS FM PRIO WX EMR A B 145 780 25 μ P SKIP D Single sweep q Set the desired frequency as band scope center frequency. w Push and hold [SCOPE](1) for 1 sec. to start a single sweep. · 1 short and 1 long beeps sound. · Signal conditions (strengths) appear starting from the center of the range. 000 The receive audio during sweeping can be muted in sounds set mode. See page 102 for details. e Rotate [DIAL] to set the highlighted cursor to the desired signal and set the frequency of the signal. r Push [VFO] to return to normal operation. 5 BASIC OPERATION I Transmitting CAUTION: Transmitting without an antenna will damage the transceiver. NOTE: To prevent interference, listen on the channel before transmitting by pushing and holding [SQL]. q Set the operating frequency. (pgs. 18, 19) · Transmission is available on the 144 MHz/440 MHz amateur bands only. · Select output power if desired. See the section at right for details.

I Transmit power selection The transceiver has two output power levels to suit your operating requirements. Low output power during short-range communications may reduce the possibility of interference to other stations and will reduce current consumption. Push and hold [LOW](3) for 1 sec. to toggle the transmit output power between High and Low. · "LOW" appears when the low power is selected. +DUP DTCS FM PRIO WX EMR w Push and hold [PTT] to transmit. · Tx/Rx indicator lights red. · S/RF meter shows the output power level. A MemoName P LOW ATT 146 010 25 μ SKIP e Speak into the microphone using your normal voice level. · DO NOT hold the transceiver too close to your mouth or speak too loudly. This may distort your speech. 000 Appears r Release [PTT] to return to receive. LOW Low power transmission Microphone LOW High power transmission Tx/Rx indicator 24 BASIC OPERATION 5 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 25 I Lock function To prevent accidental frequency changes and unnecessary function access, use the lock function. Push and hold [MENU/LOCK] for 1 sec. to turn the lock function ON and OFF. · " " appears while the lock function is activated. · The squelch control and volume control can be used while the lock function is in use with default setting. Either or both the squelch control and volume control can also be locked in set mode. (p. 90) Appears +DUP DTCS FM PRIO WX EMR I Dualwatch operation Dualwatch operation monitors two frequencies simultaneously.

The IC-91A/91AD has two independent receiver circuits as A band and B band (available frequency bands and operating mode are different depending on bands). D Dualwatch operation Push and hold [MAIN/DUAL] for 1 sec. to turn the dualwatch operation ON and OFF. · While in dualwatch operation, the display indicates A band in the upper half and B band in the lower half. +DUP DTCS FM PRIO WX EMR A MemoName P LOW ATT 146 010 25 μ SKIP A MemoName P LOW ATT 146 010 25 μ 000 SKIP 000 PRIO 146 010 25 μ 000 PRIO EM 440 00050 μ 000 FM FM +DUP DTCS +DUP DTCS W PS W PS 5 BASIC OPERATION D Setting audio volume The audio level for dualwatch operation can be adjusted both on A band and B band simultaneously (default). This setting can be set separately for each band in sounds set mode. q Push and hold [MAIN/DUAL] for 1 sec. to enter the dualwatch operation, if necessary. w Rotate [VOL] to adjust the audio level for the main band. · If squelch is closed, push and hold [SQL] to verify the audio level.

· The display shows the volume level while setting. [VOL] PRIO 146 010 25 μ 000 PRIO EM 440 00050 μ 000 FM FM +DUP DTCS +DUP DTCS W PS D Main band selection Push [MAIN/DUAL] to select A band or B band as the main operating band alternately. PRIO 146 010 25 μ 000 PRIO EM 440 00050 μ 000 FM FM +DUP DTCS +DUP DTCS W PS W PS PRIO 146 010 25 μ 000 +DUP DTCS W PS 440 000 FM FM +DUP DTCS W PS 50 PRIO EM μ 000 W PS +DUP DTCS VOL 146 010 25 μ +DUP DTCS W PS PRIO 000 PRIO EM 440 00075 μ 000 W PS FM Setting for A band (upper side) PRIO 146 01025 μ 000 +DUP DTCS W PS FM +DUP DTCS VOL 440 000 75 μ W PS PRIO EM 000 26 Setting for B band (lower side) BASIC OPERATION D Volume setting for dualwatch The volume setting for dualwatch can be set for both bands simultaneously or for each band separately in set mode. q Enter "VOLUME SELECT" in sounds set mode. (p. 102) MENU screen SOUNDS VOLUME SELECT (Push [MENU/LOCK]) (Rotate [DIAL], then push [i](5).) 5 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 27 D Setting squelch level q Push and hold [MAIN/DUAL] for 1 sec. to enter the dualwatch operation, if necessary w While pushing and holding [SQL], rotate [DIAL] to adjust the main band's squelch level. · "LEVEL 1" is loose squelch and "LEVEL 9" is tight squelch. · "AUTO" indicates automatic level adjustment with a noise pulse count system.

· "OPEN" indicates continuously open setting. [DIAL] PRIO 146 010 25 μ 000 PRIO EM 440 00050 μ 000 FM FM +DUP DTCS +DUP DTCS W PS w Rotate [DIAL] to select "BOTH" or "SEPARATE." e Push [i](5) (or [j](4)) to return to sounds set mode, and push [MENU/LOCK] to return to frequency indication. W PS +DUP DTCS SQUELCH:AUTO +DUP DTCS 146 010 25 μ W PS PRIO 000 PRIO EM 440 00075 μ 000 W PS FM Setting for A band (Upper) PRIO 146 01025 μ 000 +DUP DTCS W PS FM +DUP DTCS SQUELCH:LEVEL6 440 000 75 μ W PS PRIO EM 000 Setting for B band (Lower) [DIAL] [(2)/[(8) [i](5) [(6) 5 BASIC OPERATION I TV channel operation TV channel operation is available only when TV channels are programmed using the optional RS-91.



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(p.

122) Also available for A band operation only. w Rotate [DIAL] to select the channel to be skipped. · To clear the skip setting, rotate [DIAL] while pushing and holding [BAND] to select a skip channel. D TV channel receiving q Push [CALL] several times to select TV channels. · "TV" and channel number appear. e Push and hold [SKIP](5) for 1 sec. to toggle the skip setting ON and OFF. · "SKIP" appears when the channel is set as skip channel. [DIAL] Appears +DUP DTCS WFM PRIO WX EMR w Rotate [DIAL] to select the desired channel. · While pushing and holding [BAND], rotating [DIAL] selects the all channels including skip channel. [DIAL] TV mode indication Channel indication +DUP DTCS WFM PRIO WX EMR A MemoName P LOW ATT 12 ch μ 25 SKIP TV A MemoName LOW ATT 10 ch μ 25 TV P SKIP D Automatic TV channel programming TV channels can be programmed automatically. q Push [CALL] several times to select TV channels. · "TV" and channel number appear. +DUP DTCS WFM PRIO WX EMR D Skip channel setting Unwanted channels can be skipped for rapid selection, etc. q Push [CALL] several times to select TV channels.

· "TV" and channel number appear. A MemoName P LOW ATT 2 ch μ 25 SKIP w Push [SCAN](2) to start TV channel programming. TV · The programming will automatically stop after scanning all channels. 28 REPEATER AND DUPLEX OPERATIONS I Repeater operation When using a repeater, the transmit frequency is shifted from the receive frequency by the offset frequency. (p. 97) It is convenient to program repeater information into memory channels. (p. 66)

Repeater 144.700 MHz 144.700 MHz Uplink (transmitting freq.

) Downlink (receiving freq.) 6 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 29 e Push and hold [TONE](7) for 1 sec. to activate the subaudible tone encoder, according to repeater requirements. · "TONE" appears. Refer to p.

107 for tone frequency settings. 145.300 MHz 145.300 MHz r Push and hold [PTT] to transmit. · The displayed frequency automatically changes to the transmit frequency (repeater input frequency).

· If "OFF" appears, check the offset frequency or shift direction. (p. 30) Station A Station B q Set the receive frequency (repeater output frequency). w Set the shift direction of the transmit frequency. (DUP or +DUP; see p. 31 for details.) · When the auto repeater function is in use (U.S.A. and Korean versions only), this selection and step e are not necessary.

(p. 32) "DUP" or "+DUP" appears. -DUP TONE FM While receiving -DUP TONE FM While transmitting -DUP TONE FM A 145 300 P SKIP A 144700 P SKIP t Release [PTT] to receive. y Push and hold [SQL] to check whether the other station's transmit signal can be directly received or not. U.S.A. and Korean versions: Auto repeater function uses standard values of the repeater tone frequency and offset frequency. A 145300 6 REPEATER AND DUPLEX OPERATIONS D Checking the repeater input signal The transceiver can check whether the other station's transmit signal can be received directly or not, by listening on the repeater input frequency. Push and hold [SQL] to check whether the other station's transmit signal can be directly received or not. · When the other station's signal can be directly received, move to a non-repeater frequency to use simplex. (duplex OFF) Indication while receiving. -DUP TONE FM D Off band indication If the transmit frequency is out of the amateur band, the off band indication, "OFF," appears on the display when [PTT] is pushed. Check the offset frequency or duplex direction in this case. (p.

31) -DUP TONE FM A OFF P SKIP A 145300 P SKIP U.S.A. and Korean versions: Auto repeater function uses standard values of the offset frequency. Push and hold Receives 0.

6 MHz shift frequency. -DUP TONE FM A 144 700 P SKIP CONVENIENT! Tone scan function: When you don't know the subaudible tone used for a repeater, the tone scan is convenient for detecting the tone frequency. Push and hold [T.SCAN](9) for 1 sec. to start the tone scan. See p. 112 for more information. Blinks while pushing and holding [SQL]. 30 REPEATER AND DUPLEX OPERATIONS 6 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 31 I Duplex operation Although [DIAL] and [i](5) are used for description in this section, [j](2)/[j](8) and [j](6) are available instead of [DIAL] and [i](5). D Setting duplex direction Push and hold [DUP](4) for 1 sec.

to select "DUP" or "+DUP". · "DUP" or "+DUP" indicates the transmit frequency for minus shift or plus shift, respectively. D Setting offset frequency q Enter "OFFSET FREQ" in DUP/TONE... set mode. (p. 97) MENU screen DUP/TONE...

OFFSET FREQ (Push [MENU/LOCK]) (Rotate [DIAL], then push [i](5).) · When offset frequency is 0.6 MHz. w Rotate [DIAL] to set offset frequency. · 1 MHz and 10 MHz tuning steps are available by pushing and holding [MHz](VFO) for 1 sec.

: push [MHz](VFO) to cancel it. e Push [i](5) (or [j](4)) to return to DUP/TONE... set mode, and push [MENU/LOCK] to return to frequency indication.

No offset frequency 5.0 MHz offset U.S.A. and Korean versions: Duplex example Receiving -DUP TONE FM OFFSET FREQ OFFSET FREQ 0.000.00 5.000.00 +Duplex example Receiving +DUP TONE FM A 145300 P SKIP A 145300 P SKIP Transmitting -DUP TONE FM Transmitting +DUP TONE FM A 144700 P SKIP A 145900 P SKIP [DIAL] [j](2)/[j](8) [i](5) [j](6) Auto repeater function has priority over the manual duplex setting. If the frequency changes after setting, the auto repeater function may have changed the duplex setting.

6 REPEATER AND DUPLEX OPERATIONS I Auto repeater function The U.S.A. and Korean versions automatically use standard repeater settings (duplex ON/OFF, duplex direction, tone encoder ON/OFF) when the operating frequency falls within or outside of the general repeater output frequency range. The offset and repeater tone frequencies are not changed by the auto repeater function, reset these frequencies, if necessary. U.S.A./KOREAN versions only q

Enter "AUTO RPT" in set mode. (p. 89) MENU screen SET MODE AUTO RPT (Push [MENU/LOCK]) (Rotate [DIAL], then push [i](5).) w Rotate [DIAL] to select the auto repeater setting. [U.S.A.

version]: · "RPT1" : Activates duplex only. (default) · "RPT2" : Activates duplex and tone. · "OFF" : Auto repeater function is turned OFF. [Korean version]: · "ON" : Activates duplex and tone. (default) · "OFF" : Auto repeater function is turned OFF. e Push [i](5) (or [j](4)) to return to set mode, and push D Frequency range and offset direction · U.



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S.A. version FREQUENCY RANGE 145.200145.495 MHz 146.610146.995 MHz 147.000147.395 MHz 442.

000444.995 MHz 447.000449.995 MHz · Korean version FREQUENCY RANGE 439.000440.000 MHz SHIFT DIRECTION "DUP" appears SHIFT DIRECTION "DUP" appears "+DUP" appears "+DUP" appears "DUP" appears [MENU/LOCK] to return to frequency indication. 32 REPEATER AND DUPLEX OPERATIONS 6 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 33 I 1750 Hz tone Some European repeaters require a 1750 Hz tone burst to be accessed. For such European repeaters, perform the following. · This tone can be use as a 'Call signal' in countries out of Europe. q Push and hold [DTMF. M](.) for 1 sec. to select DTMF memory. DTMF MEMORY r i Push and hold [PTT] to transmit. o Release [PTT] to receive. !0 Push and hold [SQL] to check whether the other station's transmit signal can be received directly or not, by listening on the repeater input frequency. Ch01 w Rotate [DIAL] counter-clockwise until "T-CALL" appears. DTMF MEMORY r T-CALL e Push [i](5) to set. r Push [VFO] to exit DTMF memory. t Set the receive frequency (repeater output frequency). y Set the shift direction of the transmit frequency. (DUP or +DUP; see p. 31 for details.) u While pushing [PTT], push [SQL] to transmit a 1750 Hz tone burst signal. · If "OFF" appears, check the offset frequency or shift direction. (p. 97) · The displayed frequency automatically changes to the transmit frequency (repeater input frequency). [DIAL] [(2)/[(8) 7 DV MODE OPERATION (Optional UT-121 is required for IC-91A) D Your own call sign programming Your own call sign must be programmed for both digital voice and low-speed data communications (including GPS transmission). Although [DIAL] and [i](5) are used for description in this section, [(2)/[(8) and [(6) are available instead of [DIAL] and [i](5). I Digital mode operation The IC-91A*/91AD can be operated in digital voice mode and low-speed data operation for both transmit and receive.

It can also be connected to a GPS receiver (compatible with an RS232 output/NMEA format/4800 bps) and transmit/receive position data. *The optional UT-121 is required for the IC-91A. q Select B band as the main band. (p. 14) w Enter "MY" in call sign set mode. MENU screen CALL SIGN MY (Push [MENU/LOCK]) (Rotate [DIAL], then push [i](5).) · MY CALL SIGN screen is displayed. MY CALL SIGN r M01 / :SET :BACK :SEL :EDIT CLR:CLR I Call sign programming Four types of call sign memories are available; your own call sign "MY CALL SIGN," other station call sign "YOUR CALL SIGN," repeater call sign "RPT1 CALL SIGN" and "RPT2 CALL SIGN." "MY CALL SIGN" can store up to 6 call signs, "YOUR CALL SIGN" can store up to 60 call signs and "RPT1/2 CALL SIGN" can store up to 60 call signs, and each call sign can be programmed with up to 8 characters. e Rotate [DIAL] to select the desired call sign memory, "M01" to "M06.

r Push [(6) to enter call sign programming mode. · The 1st digit blinks. MY CALL SIGN r M01 / AB :SET :SEL :CUR CLR:CLR A/a:CHAR t Rotate [DIAL] to select the desired character or code. · Push [A/a](3) to change the character group from "AB" (alphabetical characters; capital letters), "12" (numbers) and "/" (symbols) in sequence. 34 DV MODE OPERATION (Optional UT-121 is required for IC-91A) 7 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 35 y Push [(6) to select 2nd digit, then rotate [DIAL] to select the desired character or code. · Push [(6) to move the cursor right; push [(4) to move the cursor left. · 2nd digit blinks (1st digit stops blinking). MY CALL SIGN r !0 Push [i](5) to store the programmed call sign with note and returns to MY CALL SIGN screen. !1 Push [MENU/LOCK] to return to frequency indication. M01 M / AB :SET :SEL :CUR CLR:CLR A/a:CHAR u Repeat the steps t and y to enter your own call sign. · Up to a 8-digit of call sign can be set. @@to erase all characters following the cursor. · When programming a note (Up to a 4-digit for operating radio type or area, etc.), go to step i, otherwise go to step !0. i Push [(6) several times to set the cursor beside "/" indication. o Repeat steps t to y to program the desired 4-character note. MY CALL SIGN r M01 MYCALL /IC91 :SET :BACK :SEL :EDIT CLR:CLR [DIAL] [(2)/[(8) [i](5) [(6) 7 DV MODE OPERATION (Optional UT-121 is required for IC-91A) D Station call sign programming Station call sign must be programmed for the specified station call as well as repeater operation in both digital voice and low-speed data communications. q Select B band as the main band. (p. 14) w Enter "UR" in call sign set mode.

MENU screen CALL SIGN UR (Push [MENU/LOCK]) (Rotate [DIAL], then push [i](5).) · YOUR CALL SIGN screen is displayed. YOUR CALL SIGN r y Push [(6) to select 2nd digit, then rotate [DIAL] to select the desired character or code. · Push [(6) to move the cursor right; push [(4) to move the cursor left. · 2nd digit blinks (1st digit stops blinking). YOUR CALL SIGN r U01 AB S :SET :SEL :CUR CLR:CLR A/a:CHAR 0:CQ U CQCQCQ :SET :BACK :SEL :EDIT CLR:CLR u Repeat the steps t and y to enter the desired station call sign. · Up to an 8-digit of call sign can be set. @@to erase all characters following the cursor. YOUR CALL SIGN r e Rotate [DIAL] to select the desired call sign memory, "U01" to "U60." r Push [(6) to enter call sign programming mode.

The 1st digit blinks. YOUR CALL SIGN r U01 U01 STATION1 :SET :BACK :SEL :EDIT CLR:CLR AB :SET :SEL :CUR CLR:CLR A/a:CHAR 0:CQ t Rotate [DIAL] to select the desired character or code. · Push [A/a](3) to change the character group from "AB" (alphabetical characters; capital letters), "12" (numbers) and "/" (symbols) in sequence. i Push [i](5) to store the programmed call sign and returns to YOUR CALL SIGN screen. o Push [MENU/LOCK] to return to frequency indication.

36 DV MODE OPERATION (Optional UT-121 is required for IC-91A) NOTE: During the call sign programming mode (r to u), push [CQ](0) to set "CQCQCQ," and push [CQ](0) again to return to the previously stored call sign. 7 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 37 For your information The IC-91A/91AD has call sign edit record function. When editing a call sign stored in a call sign memory, regular memory or call channel, the default setting is to store the edited call sign into a blank channel automatically. ("FULL" is displayed when all call sign memory is programmed.



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) The edited call sign can be over-written when the setting of the EDIT RECORD is set to OFF or SELECT.

(p. 95) However, you must manually over-write a programmed call sign in regular memory and call channels. (Temporary operation without over-writing is possible.) [DIAL] [(2)/[(8) [i](5) [(6) 7 DV MODE OPERATION (Optional UT-121 is required for IC-91A) I Digital voice mode operation qSet the desired frequency in B band. (pgs. 14, 18) · Select output power, if desired. (p. 24) w Select DV mode. (p. 21) e Set your own call sign for DV operation as follows.

z Enter "MY" in call sign set mode. MENU screen CALL SIGN MY (Push [MENU/LOCK]) (Rotate [DIAL], then push [i](5).) NOTE: The digital mode operation is vastly different from FM mode. One of the differences is in digital mode the squelch does not function as in FM mode. Changing the squelch setting will not open it to hear the hiss of "White Noise." It only activates for digital squelch functions such as CSQL (Digital code squelch) or DSQL (Digital call sign squelch). xRotate to select the desired your own call sign channel (if you have programmed several call signs) then push [i](5) to set the call sign and return to CALL SIGN screen. [DIAL] · See page 34 for your own call sign programming details. CALL SIGN r UR: R1: R2:NOT USE* MY:MYCALL /IC91 rSet the desired call sign as described in "When calling the desired station (p. 39)" or "When sending a CQ (p. 39)." tPush and hold [PTT] to transmit and speak into the microphone at normal voice level. · Tx/Rx indicator lights red and the RF meter shows the output power. y Release [PTT] to return to receive. · The other station call sign will be received.

· Received call signs can be stored into the received call record automatically. See page 93 for details. 38 DV MODE OPERATION (Optional UT-121 is required for IC-91A) D When calling the desired station Continued instruction from step x on page 38. cRotate [DIAL] to select "UR," then push [i](5). · YOUR CALL SIGN screen is displayed.

7 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 39 D When sending a CQ Continued instruction from step x on page 38. cRotate [DIAL] to select "UR," then push [i](5). · YOUR CALL SIGN screen is displayed. vRotate [DIAL] to select the call sign channel in which desired station's call sign is programmed. · See page 36 for station call sign programming details. bPush [i](5) to set the station's call sign and return to CALL SIGN screen. CALL SIGN r vRotate [DIAL] to select the call sign channel in which "CQCQCQ" is programmed. Or, select "U" then push [(6) and [CQ](0) in sequence to set "CQCQCQ." bPush [i](5) to set "CQCQCQ" as the call sign and return to CALL SIGN screen. CALL SIGN r UR:STATION1 R1: R2:NOT USE* MY:MYCALL /IC91 nPush [MENU/LOCK] to return to frequency indication.

m Perform the instruction steps t and y on page 38. UR:CQCQCQ R1: R2:NOT USE* MY:MYCALL /IC91 nPush [MENU/LOCK] to return to frequency indication. m Perform the instruction step t and y on page 38. [DIAL] [(2)/[(8) [i](5) [(6) 7 DV MODE OPERATION (Optional UT-121 is required for IC-91A) For current repeater operation, stations that are communicating must both be in the same repeater's operating area. However, in the D-STAR system as in the illustration at left, the repeaters can be linked via the system repeaters (with a 10 GHz signal). Thus stations A and B can communicate even though they are in different repeater operating areas. Also, the D-STAR system repeaters are connectable through the internet-- gateway connection capability. 10 GHz Repeater B 440 MHz 440 MHz Station A Internet network Station B I About D-STAR system In the D-STAR system, repeater linking via a 10 GHz band backbone and internet network (gateway connection) capabilities are available. This system provides you to with much wider coverage range during digital voice mode operation. · D-STAR system outline Repeater A For example, when station B uses the gateway connection station B can communicate with the station C! By using the gateway connection, long distance communication like DX operation may be possible with 144 or 440 MHz digital voice! In the D-STAR system, an independent repeater's operating area is called an Area and a group that of linked repeaters via a 10 GHz backbone is called a Zone. 10 GHz Repeater C 440 MHz Repeater D 440 MHz Station D Station C About time-out timer function The IC-91A/91AD has a time-out timer function for digital repeater operation. The timer limits a continuous transmission for approx. 10 min. Warning beeps will sound before 30 sec. (approx.)

) and just before the timer functioning. 40 DV MODE OPERATION (Optional UT-121 is required for IC-91A) 7 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 41 I Digital repeater operation Repeater call signs must be programmed for repeater operation in both digital voice and low-speed data communications. u Repeat the steps t and y to enter the desired repeater call sign. · Up to an 8-digit of call sign can be set. · Push [7] when setting with the gateway connection if the selected repeater has gateway capability.

(The gateway connection can be set in RPT1 only when "NOT USE" is set to RPT2.) @@to all characters following the cursor. RPT1 CALL SIGN r D Repeater call sign programming q Select B band as the main band. (p. 14) w Enter "R1" or "R2" in call sign set mode. MENU screen CALL SIGN R1/R2 (Push [MENU/LOCK]) (Rotate [DIAL], then push [i](5).) · RPT1 or RPT2 CALL SIGN screen is displayed. e Rotate [DIAL] to select the desired call sign memory, "R01" to "R60." r Push [(6) to enter call sign programming mode. · The 1st digit blinks.

R01 RPT1AA G :SET :BACK :SEL :EDIT CLR:CLR t Rotate [DIAL] to select the desired character or code. · Push [A/a](3) to change the character group from "AB" (alphabetical characters; capital letters), "12" (numbers) and "/" (symbols) in sequence. · Set "/" at the 1st digit then set the desired area repeater's call sign (in a different zone) for CQ call ("/" stands for "CQCQCQ") in a different zone operation. (p. 44) i Push [i](5) to store the programmed call sign and returns to RPT1 or RPT2 CALL SIGN screen. o Push [MENU/LOCK] to return to frequency indication. y Push [(6) to select 2nd digit, then rotate [DIAL] to select the desired character or code. · Push [(6) to move the cursor right; push [(4) to move the cursor left. · 2nd digit blinks (1st digit stops blinking). [DIAL] [(2)/[(8) [i](5) [(6) 7 DV MODE OPERATION (Optional UT-121 is required for IC-91A) D Repeater operation in the same zone qSet the desired repeater's frequency, offset and shift direction in B band.



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