



Livermore
DATA SYSTEMS INC.



**ATTACHE PHONE
MODEL LAP-2000**

OPERATING INSTRUCTIONS

ATTACHE PHONE MODEL LAP-2000

GOVERNMENT REGULATIONS

Each user of mobile radio equipment is subject to the provisions of the Communications Act and the rules and regulations of the Federal Communications Commission. Persons violating these rules may be denied service and punished by law.

IDENTIFICATION - State your portable phone number at the start and end of each transmission.

LANGUAGE - Obscene, indecent or profane language is prohibited.

DISTRESS - No person may knowingly transmit a false or fraudulent distress signal.

PRIVACY - It is unlawful to "listen-in" on any conversation intended for others and to divulge any information so obtained.

INTERFERENCE - The willful interference with any call or signal is illegal.

OBEYING THE OPERATOR - All instructions given by the operator must be followed since the mobile unit is under control of the base station licensee.

EQUIPMENT INSPECTION - A check for satisfactory equipment operation must be performed annually.

REPAIRS - Only FCC licensed technicians may repair or adjust the equipment. Contact your distributor for an approved service center.

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EMERGENCY CALLS

CALLS TO REPORT AN ACCIDENT OR OTHER EMERGENCY INVOLVING SAFETY OF LIFE OR PROPERTY HAVE ABSOLUTE PRIORITY. NO UNIT SHALL TRANSMIT WHILE AN EMERGENCY CALL IS BEING HANDLED.

NATIONAL MOBILE TELEPHONE SERVICE DIRECTORY

A small directory, indicating channels available in each metropolitan or geographical area is supplied by your telephone company on request. This is a necessary aid if you plan to travel outside your home area with the Attache Phone.

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GENERAL INFORMATION ABOUT YOUR ATTACHE PHONE

Your Livermore Data Systems Model LAP-2000 Attache Phone is a portable and complete radio telephone to be used with the public mobile telephone service offered by the various telephone companies in the United States.

Telephone calls to or from your Attache Phone are made over a radio link to a nearby transmitting and receiving base station operated by the local telephone company. Continuation of the call over regular telephone lines is then possible to any telephone in the world.

The Attache Phone is capable of operating through either the operator accessed Manual Telephone System (MTS) or the two-way dial service (IMTS) with controls and displays not available on any other portable telephone. Construction is all solid-state, and is modularized for easy service or maintenance. All eleven channels of the VHF Mobile Telephone Service are provided in every Livermore Attache Phone, enabling you to use your phone anytime, anywhere in the United States.

The transmitter operates at a nominal frequency of 158 MHz and delivers 18 watts of output power to either the internal antenna (concealed behind the pocket in the Attache case lid) or to the external antenna. Your Attache Phone has been designed to operate just like the telephone in your office. You can talk and/or listen to the party at the other end of the line simultaneously. However, in order to conserve battery power when using your Attache Phone in areas offering manual service (MTS) it is recommended that you use the Push-to-Talk feature.

Your personal telephone number, 5 digits for MTS subscription service or 7 digits for IMTS service, is programmed into your Attache Phone by your dealer or his service center. Your dealer will fully describe the operation of your Attache Phone and will advise you of special procedures that may be required in your service area.

USING YOUR ATTACHE PHONE

Your Attache Phone comes equipped with the latest features and accessories to make this one of the most useful personal or business investments you will ever make. The controls and displays have been designed to be convenient, and after minimum training and actual use, relatively simple to use. To gain the maximum benefit from your Attache Phone communications system you should carefully read this manual before initially using it, and periodically review its contents to assure proper maintenance and service.

CONTROLS AND INDICATORS

The following paragraphs briefly describe the basic controls and indicators illustrated on page 12 of this manual. All switches (other than the spring loaded HOOKSWITCH and PTT switch) are alternate action, push-on, push-off type switches.

- A. POWER - When the POWER switch is depressed your Attache Phone is being powered from its own internal Nicad Battery. Whenever either the Cigarette lighter adaptor or the AC wall plug accessory are used, the POWER switch should be in the OFF (up) position. This will allow your Nicad Battery to be recharged while power is being derived from an external source.
- B. SPEAKER - The SPEAKER switch allows the received audio signals to be directed to the AUDIO MONITOR SPEAKER. This permits you to monitor the channels to listen for a vacant one without actually holding the handset to your ear or to let others listen in on your conversation when desired. If the VOLUME control is set too high and the handset is near the SPEAKER, feedback as in a public address system will create a disturbing audio squeal.
- C. IMTS - The IMTS switch selects the mode in which the unit must operate. For IMTS service the switch is depressed and the IMTS indicator will be lighted. For Manual (MTS) service the switch should be OFF (up) and the IMTS indicator off.
- D. PTT (CONTROL PANEL) - The PUSH-TO-TALK is a momentary action switch used primarily on the IMTS network when placing a mobile

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to mobile call over a single IMTS channel. (See the section describing Mobile to Mobile calls.) The PTT indicator (function) can be turned off by alternately pressing the button or by "hanging up" the handset on the HOOKSWITCH.

- E. JK, JL, JR,...YS - These eleven switches and indicators represent the eleven VHF two-way channels that are available for use throughout the North American Continent.

Not all channels are available in any one metropolitan area. For most effective use, consult the National Mobile Telephone Service Directory and push down the channel buttons for those stations in your service area. This will allow your equipment to give maximum attention to these channels and prevent interference from channels outside your service area. Your Attache Phone will scan or search only those channels whose switch buttons are down.

- F. BATT LOW - The BATTERY LOW indicator is a warning that your internal Nicad Battery has discharged to a level established as a safe, rechargeable level. Recharge the battery when this indicator is lighted. Prolonged use after this lamp is lighted could cause damage to your battery and prevent it from ever being recharged.
- G. XMIT - The XMIT (Transmit) indicator is lighted whenever your Attache Phone is radiating 18 watts of power. Since your Nicad Battery is capable of supplying only enough energy when fully charged to transmit for approximately forty-five (45) minutes this light serves as a reminder to limit the length of your calls and as a positive indication that your transmitter is ON.
- H. BUSY - When the handset is OFF-HOOK, a BUSY lamp on the MTS mode shows the channel is busy. In this case, to make a call choose another suitable channel. In the IMTS mode, a BUSY lamp ON when the handset is OFF-HOOK indicates that you have failed to seize the channel for one or more of the following reasons: channel BUSY, equipment was not locked to an idle tone, range to station is too great. In any of these cases, you must go back ON-HOOK before trying again to make a call. When the handset is ON-HOOK, this lamp goes on only when the equipment is decoding an incoming call.

THE EXTERNAL PLUG-IN ANTENNA

In order to counteract the shielding effect of the metal body of an automobile in which the Attache Phone is used, a plug-in quarter-wave antenna and cable assembly is supplied. This antenna can be clipped to the gutter of the car roof and the cable run in through the window. Transmitter power, which is normally connected to the Attache Phone antenna in the case cover, is automatically switched to the external antenna when the plug is inserted.

A longer, 5/8 wavelength automobile antenna which will give greater range or a stronger signal may alternately be used if its cable end has the proper plug (Type Switchcraft 440 or equivalent). For this alternative, check your dealer or service agency.

THE BATTERY CHARGER

This accessory plugs into the usual wall socket and transforms the AC 115 volts to a lower D.C. Voltage for charging the battery. The charging current is limited by a series ballast lamp (type GE-82) to protect the battery. Do not energize the transmitter while this battery charger is in use.

The time required for a full charge at the rate recommended by the battery manufacturer is 14 hours. It is perfectly safe to leave the charger on for a longer period.

THE CIGARETTE-LIGHTER POWER ACCESSORY

The Attache Phone may be powered from the automobile 12 volt power system and its battery recharged by the use of this accessory. Noise and voltage transients on the auto power line are removed by regulatory circuits to protect the Attache Phone and a second ballast lamp (type GE-64) limits the battery charge current. Use of this accessory whenever the Attache Phone is in the automobile is recommended both for charging the battery and making or receiving a call.

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HOW TO MAKE A CALL

1. Handset is ON-HOOK.
2. In your car, for best results plug in the external antenna and use the cigarette-lighter plug-in for the car battery power. However, it is always possible to use the internal battery and the internal antenna, although the steel car body will decrease your range.
3. Depress the channel buttons for the channels available in your local area. (To raise a button, push it again; these are push-push switches).
4. Select IMTS or MTS mode in accordance with the following table, and turn the power ON.

| Number of Digits in your mobile telephone number. | Base Station to which you are registered operates in this mode. | If Roaming in: | |
|---|---|----------------------------|---------------------------|
| | | <u>IMTS</u> area use | <u>MTS</u> area use |
| 7 | IMTS | IMTS | MTS |
| 5 | MTS | MTS | MTS |

IMTS MODE

5. Check to see that your equipment is locked to an idle channel. The Channel Light will be steady.
6. Pick up handset OFF-HOOK. This automatically turns on your transmitter and attempts to seize the channel. If there is a problem, the XMIT light will go off and the busy light will go on. In this case, you must go back ON-HOOK to re-establish a lock to an idle channel.
7. If no problems, you will receive a dial tone and be able to dial your number, or the operator may respond if you are roaming out of your home area and you may place your call through her.
8. Replace handset ON-HOOK after each call to release channel.

MTS MODE

5. Pick up the handset. The equipment scan stops. Check if the channel is available or busy. If busy, you may hear a voice and the busy light will go on. Step to another channel using the Channel Sequence Switch until an open channel is available. NOTE: In IMTS areas, the busy lights may go on when the MARK IDLE channel tone is present on an IMTS channel. The MTS Roamer may use this channel in his usual way.
6. Press the handset PTT for 2 to 3 seconds. Listen for the operator to respond and place your call through her. Give your telephone number and city of registration for identification and billing. For example; "Mobile Operator, this is YS12345, San Jose registry. I'm calling 555-1212."
7. At the end of the conversation, sign off and release the channel: For example: "This is YS12345 Clear."

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HOW TO RECEIVE A CALL

In the standby condition to receive a call, the Attache settings should be as follows:

1. Depress the channel buttons for the channels in your local area.
2. Select the correct mode, IMTS or MTS, for the area.
3. Handset ON-HOOK, Power ON.
4. Set Attache Phone so that the cover is in a vertical plane. When your equipment recognizes that your telephone number has been received, the speaker will sound for several seconds and the call light will come on and stay on.

TO ACKNOWLEDGE THE CALL (IMTS)

1. Open case, set lid in vertical plane.
2. Pick up handset and announce your mobile telephone number. You are connected to your caller, your transmitter is on, and your conversation may proceed.
3. At the end of the call, replace handset ON-HOOK. NOTE: If your calling party is another mobile, the operator may direct you to go to PUSH-TO-TALK operation. To do this push down once on the PTT button in the switch assembly.

TO ACKNOWLEDGE THE CALL (MTS)

1. Open case, set lid in vertical plane.
2. Pick up handset, press push-to-talk switch and announce your mobile telephone number. The operator will then connect your calling party.
3. At the end of the call, repeat your mobile number and release the channel, e.g. by saying "This is YS12345 CLEAR."
4. Replace handset ON-HOOK.

TIPS ON USE

1. Remember that the Attache Phone radiates and receives through the antenna in the case lid which should be kept in a vertical plane. Keep metal objects away and orient the handset cord so that it is horizontal and away from the antenna to prevent undesirable pickup of the transmitted signal.
2. Maximum range is achieved over a line-of-sight path to the base station antenna. If a particular station reception is poor, try another channel to see if that transmission path is more favorable or move out of the "shadow" of a hill or large building. The Attache Phone antenna is most effective when vertical, both for the internal case lid antenna and the plug-in antenna.
3. Your assigned number and city of registration should always be used for identification regardless of your location.
4. In the IMTS-mode, your phone automatically searches for and locks on to an idle-tone sent out by the telephone company on an available channel. If you attempt to make a call before your set is in this "ready" condition or if all channels are busy, the equipment will go to the busy condition when you go OFF-HOOK, and your transmitter and receiver are blocked. Go back ON-HOOK to try again when the channel is available and the set is in a "ready" condition. If you are outside the service range of the station the set will also go to BUSY. This situation is prevented when you depress the channel buttons of only those stations in your service area.
5. It is not possible to use the phone in an IMTS mode on an MTS station.

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TAKING CARE OF THE BATTERY

Your Attache Phone is powered by a rechargeable nickel-cadmium battery selected as the optimum type and size for reliable service under the conditions of operation of this equipment. This battery is capable of long repeated service when charged regularly. The state of charge is shown by the battery meter when the power is on. The battery should be charged such that the meter needle indicates in the red area to the right. This is a satisfactory state of charge. A low-voltage battery alarm circuit is activated when the battery charge requires recharging. In this situation, the battery-lowlight will pulse and an audible alarm is sounded every few seconds. The equipment may be used for urgent calls, but continued use under a low voltage alarm condition may damage the battery. It should be recharged promptly! This is best done with the battery charger, although charging is also accomplished with the cigarette-lighter power accessory. Charging current is limited by a series lamp in the charging circuit so that the charger may be connected and left on without damage to the equipment or the battery.

In the IMTS mode of operation, the transmitter is on continuously for the duration of the call and the resulting battery drain will require frequent recharging or use of the cigarette-lighter power accessory whenever the Attache Phone is carried in a vehicle.

Although there is no load placed on the battery when the equipment is turned off, it will still discharge slowly to approximately half-charge in 3 months when stored at 70° F (with faster discharge at a higher storage temperature). Therefore, charge the battery at least every two months, if not in use.

MAINTENANCE

Your Attache Telephone requires only reasonable care. Excessive abuse, impact, or exposure to inclement weather may adversely affect performance of the unit and should, therefore, be avoided.

Maintenance beyond that described below must be accomplished by or under the direct supervision of a holder of the FCC first or second class Radio Telephone Operator License.

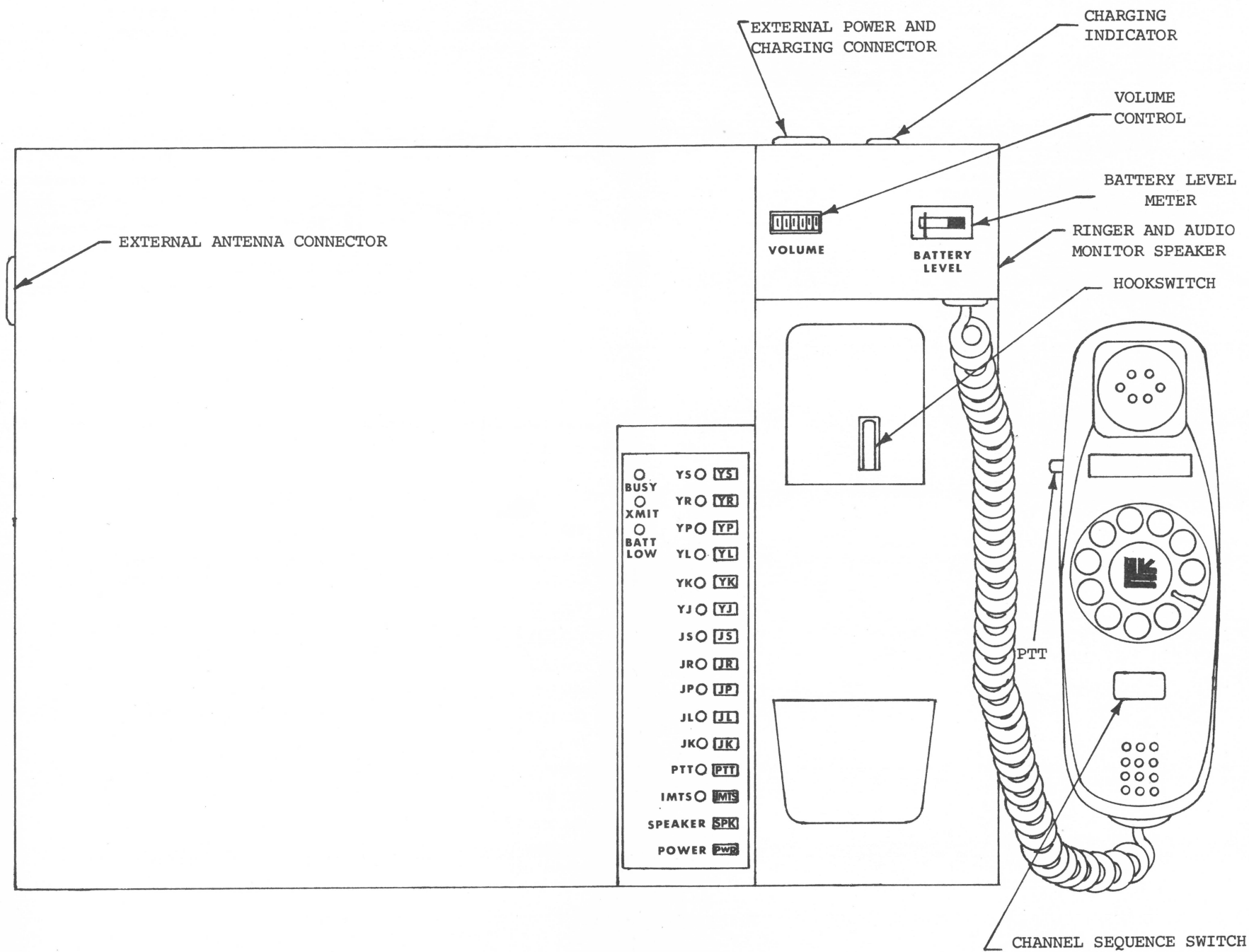
OPERATOR MAINTENANCE

Although the Attache Telephone is relatively troublefree when subjected to normal usage and handling, occasionally a fuse or lamp may burn out and need to be replaced. The fuse and the charging ballast lamps are the only components that the operator may replace. The fuse is located below the feature cover, next to the battery housing, and the ballast lamps are located on the underside of the phone well assembly at the rear of the unit. The fuse is 7.5 Amp. Type 3AG. The ballast lamps are GE-82 and GE-64.

UNIT DOES NOT RECHARGE:

Failure of the unit to recharge when the battery charger is properly connected between the unit and a 110 volt AC source is noted by the absence of illumination at the power plug indicator where the charger plugs into the phone. In this event, the charging ballast lamp or fuse is at fault. Access to the lamp is gained by removing the four screws that hold the phone well assembly in place and then carefully lifting the phone well assembly and moving it to the outside of the case as far as the cable harness will permit.

While either cover is removed, do not make any adjustments to the electronic circuitry. For a longer, troublefree life of the unit, always reinstall the covers just as soon as the defective fuse or lamp is replaced. Covers must be securely fastened in place to prevent undesirable noise in the transmitted signal.



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WARRANTY

Livermore Data Systems, Inc., warrants this new Attache Telephone Model LAP-2000 to the original owner against defective parts, material, and workmanship for six months from date of original sale or installation. This warranty does NOT include the rechargeable battery, which carries the battery manufacturer's warranty of one year from date of manufacture. Our obligation under this warranty is limited to exchanging defective parts with a new part or repairing the defective part. Repair labor for the correction of defective parts or inoperable equipment will be paid by Livermore Data Systems if the equipment is returned to the factory during the warranty period, transportation charges pre-paid. Warranty labor does NOT include labor charges for installation.

Should this model covered by this warranty fail to operate properly, contact the distributor from whom it was purchased. Service work must be performed by Livermore Data Systems' Service Station in order for the owner to receive the benefits of this warranty.

This warranty shall be in effect only after the Attache Telephone Equipment is registered at Livermore Data Systems, Inc., and this shall be within 15 days after the sale or installation of such equipment by the Distributor or authorized Service Center.

This warranty does not apply to any Attache Telephone damaged by accident, improper use or abuse, or repaired with other than factory approved parts, or which has been altered or repaired in a way that affects the reliability or performance of this equipment, or any unit where the serial number has been altered, effaced, or destroyed.

Livermore Data Systems, Inc., makes no other warranty expressed or implied and neither assumes or authorizes anyone else to assume for it any other obligation, consequential or inconsequential, or liability in connection with said equipment.

LIVERMORE DATA SYSTEMS, INC.

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M. H. H. H. H. H.

HANDY REFERENCE TABLE

| CHANNEL | IMTS DIAL or | MTS MANUAL | LOCATION |
|---------|-----------------|---------------|----------|
| JK | | | |
| JL | | | |
| JP | | | |
| JR | | | |
| JS | | | |
| YJ | | | |
| YK | | | |
| YL | | | |
| YP | | | |
| YR | | | |
| YS | | | |

SET TELEPHONE NO: _____

CITY OF REGISTRATION: _____