



For Additional Support and Comments:

Internet: www.door-aid.com Email: bedoor@door-aid.com

Tools needed for installation of Door-Aid®

Hammer
Scribe/Pencil
Center Punch
Appropriate standard and Phillips screwdrivers
Set of standard hex head (Allen) wrenches
Adjustable wrench
3/8" variable speed drill

Force or weight scale (such as the one made by the Howard Mfg. Co. telephone # 303-794-2510) - optional

Drill bits:

1/8" drill bits for pilot holes 1/4" cement drill bits

Wrenches:

3/8" open end/box end wrench 7/16" open end/box end wrench

Sockets:

3/8" six or twelve point 3/8" drive socket 7/16" six or twelve point 3/8" drive socket 3/8" ratchet wrench with a 6" extension

ADDITIONAL RECOMMENDED PARTS TO KEEP ON HAND FOR THE INSTALLATION OF THE DOOR-AID UNIT

Floor stops (1)
Wall door stops (1)

1/4" wall anchors with screws, as needed

1/4" concrete anchors with screws

ABC 10 amp fuse (use only this type of fuse)

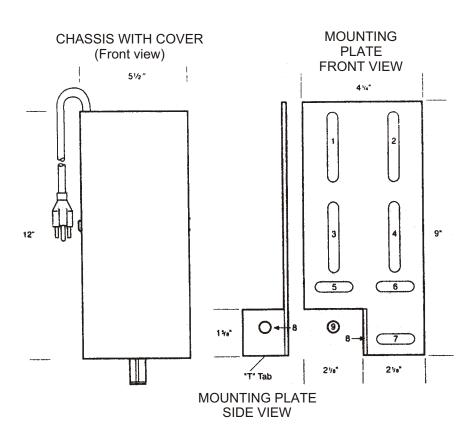
5/16" self tapping hardened bolts to be used when stripping out at 1/4" hole 5/16" lock washers

KEEP ALL EXTRA BOLTS, SCREWS, ETC. FROM THE DOOR-AID® KIT.

NOTE: Dealer/installers may wish to invest in a nut-rivet applicator such as the Brute "Thread-Serts" (1/2 - 20) or "Nut Serts", which improves installation speed and makes more secure fastenings, especially on thin gauge metal door frames.

Door-Aid® Assembly Components

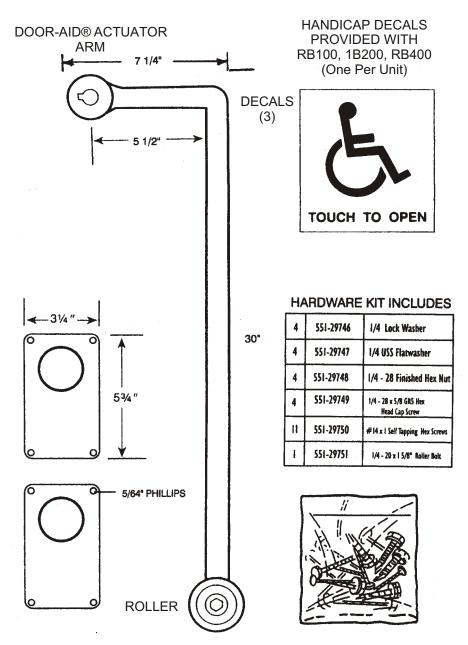
GENERAL DIMENSIONS - (5 1/2" x 5 1/4" x 11 3/4")



MODEL B1000S "T" TYPE MOUNTING BRACKET

NOTE: Slots/holes are numbered for further reference in installation process.

(9) represents hole made in extrusion where chassis is bolted down directly to door frame. A washer may be used to substitute mounting plate thickness.



NOTE: Roller Attachment
Use one yellow 1/4 - 20 x 1 5/8"
Bolt from Bolt Package

-Optional Accessories-

RB100 - PREMIUM WIRELESS TRANSMITTER BUTTONS

RB200 - PREMIUM BUTTON/DIRECT WIRE (NOT WIRELESS)

AGAP - ABOVE GROUND BUTTON ATTACHMENT POST

PT100 - HAND-HELD WIRELESS BUTTON

DS7 - MICROWAVE MOTION SENSOR (WIDE OR NARROW PATTERN)

DA700 - "Z" BRACKET, FOR IN-SWING DOOR APPLICATIONS

DA1100 - ACCESSORY RELAY CONTROL BOARD (FOR USE WITH ELECTRIC LOCK-STRIKE, MOTION SENSORS AND ACCESS CONTROL DEVICES.) See page 25 this manual.

Step One

DOOR SYSTEM

Prior to Door-Aid® installation perform the following door maintenance:

Make sure that the door will open and close without binding or interfering at hinge, frame or floor. Check that the closer or other hardware does not project into any space that would limit normal door travel. Look for back-check valve adjustment. Quality closers have the capability to adjust back-check pressure which is necessary for proper adjustment of the system.

Door Closer:

If you find that your existing door closer needs to be replaced, we recommend that your new closer has the following characteristics:

- · Opening/closing force adjustment
- · Adjustment by valve, not arm position
- Back-check adjustment

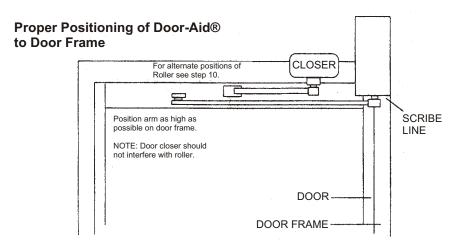
Door-Stop Installation where necessary (door stops not included)

- A. Open door 90 degrees and mark area where door-stop will be installed.
- B. Follow installation instructions on door-stop package.

NOTES:

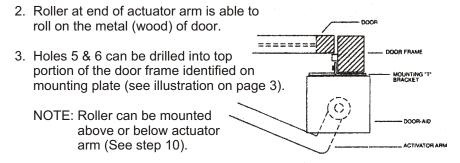
- 1. Determine if door-stop should be wall or floor mounted.
- 2. Do not put door-stop in traffic area.
- 3. Some closers have a door-stop built in; if so, another is not needed.

Step Two



NOTE: See pgs. 7 & 8 for mounting options and installation variations.

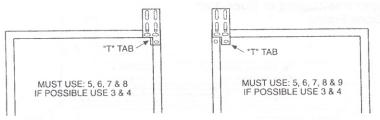
- A. Install actuator arm temporarily without woodruff key.
- B. Hold assembly to hinge side of door, position assembly so:
 - 1. Actuator arm misses closer arm.



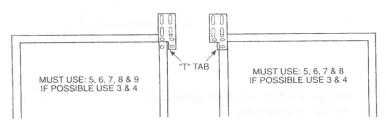
C. Scribe a line across the door frame at the bottom of the chassis, then take assembly down.

PREFERRED MOUNTING OPTIONS WITH BOLT HOLE DESIGNATIONS

*For mounting hole number code, refer to pg. 3.

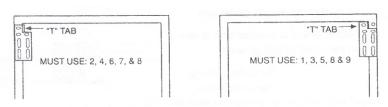


"T" TAB INSIDE DOOR FRAME MOST TYPICAL

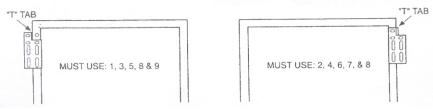


"T" TAB OUTSIDE DOOR FRAME

OPTIONS FOR INSUFFICIENT CEILING CLEARANCE

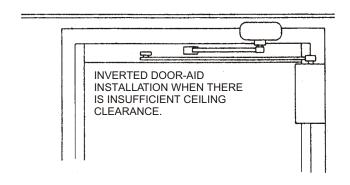


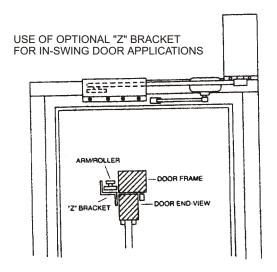
"T" TAB INSIDE DOOR FRAME

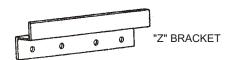


"T" TAB OUTSIDE DOOR

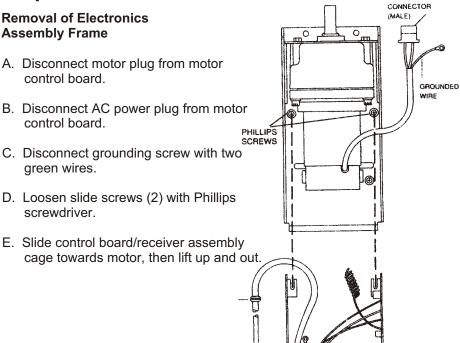
INSTALLATION VARIATIONS







Step Three



A.C. CORD

MOTOR POWER

A.C. CORD 'P" CLIP

MOTOR POWER

CONNECTOR (FEMALE)

Step Four

Removal of Gearmotor

- A. Remove four bolts.
- B. Slide out gearmotor.
- C. Empty chassis is now ready for installation.



A.C. POWER

CONNECTOR

GROMMET SLOT

Step Five

Installing the Mounting Plate to the Door Frame

Mounting Bracket Must Be Used.

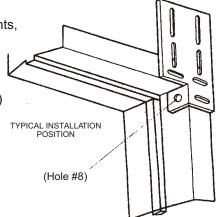
Unbolt motor chassis from shipping board.

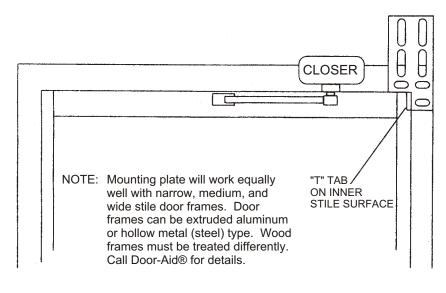
A. Hold mounting plate to mark on door frame, scribe hole #8 onto door frame.

B. Remove mounting plate and centerpunch scribed hole. (See Helpful Hints, page 11.)

C. Drill out center-punched hole using 13/64" drill bit. (It may be easier to first drill a pilot hole with 1/8" drill bit.)

D. Using the 1/4-14 x 1" self-tapping screws, provided, place 1/4" lockwasher on screw. Insert into predrilled holes and tighten snugly. Be careful not to strip hole. (See Helpful Hings, page 11)





Helpful Hints for Step Five

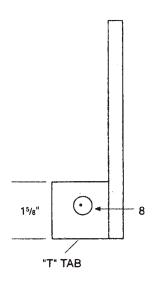
1. When center punching hole #8 (side view), punch slightly back of center (see illustration).

When drilled and screwed into place, this will actually draw the face of the mounting plate tightly against the frame of the door.

2. If any holes are stripped due to over tightening, remove 1/4-14 x 1" self-tapping screw and replace with next size larger self-tapping screw.

Do not overtighten.

"Nut-Serts" or "Thread-Serts" fasteners are a recommended alternative to self-tapping screws. Also, tapping holes and using metal screws are a good alternative.

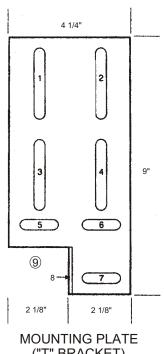


MOUNTING PLATE (SIDE VIEW)

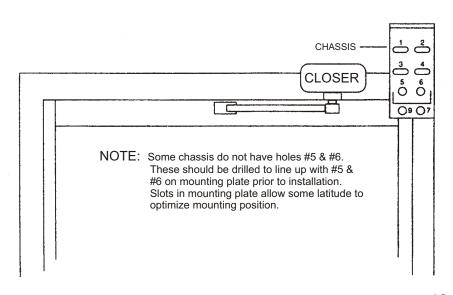
Step Six

Installing the Motor Chassis to the Mounting Plate

- A. Position empty chassis onto mounting plate and align holes on backside of chassis with mounting bracket. Mark pilot holes. Remove chassis and drill pilot holes.
- B. Reposition chassis onto mounting bracket. Drive 1 screw with lockwasher attached into place, check alignment of pilot holes. Drive remaining screws with lock washers attached into place.
- C. Door-Aid® chassis is now mounted and ready for the installation of internal components (gearmotor and electronics cage).



("T" BRACKET)



Step Seven

Re-installing Gearmotor and Electronics Assembly Frame

Gear motor: Install Gear motor with 4 bolts and tighten.

NOTE: Before implementing the following: if the code sequences for the transmitter/receiver must be changed, see instruction sheet located in box marked "Door-Aid® Remote Control Set". Refer to Step 12 for additional information.

- A. Slide electric board assembly frame onto slide screws and tighten.
- B. Reconnect grounding screw with two green wires. Important Note: Do not attach any other wires to this ground.
- C. Reconnect power plug to electronic control board assembly.
- D. Reconnect motor plug.

Step Eight

Power to the Unit

Each Door-Aid® unit should have 120 volt, 15-20 amp AC source. This should be installed by a qualified electrician.

Unit should be plugged into a standard GFI (ground fault interrupt) outlet.

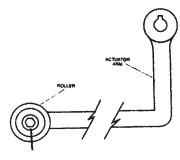
A dedicated line is not required. Nominal draw is 2 amps.

- A. When bringing AC plug out of Door-Aid® unit, (only 10" of cord may extend outside of unit), the following must be done;
 - 1. Loosen strain relief clamp.
 - 2. Move cord and grommet to new location.
 - 3. Pull cord back through "P clip" so that only a maximum of 18" is left outside unit.
 - 4. Retighten clamp to 22" lbs. of torque.
- B. After all motor, receiver and accessories are connected properly the following should be done:
 - Plug AC power supply cord into AC outlet. (Allow 1-2 minutes for charging capacitor.)
 - 2. Activate unit via control button to establish motor shaft direction.
- NOTE: Direction of motor rotation (and actuator arm) can be changed by turning the motor plug around at the control board.
- NOTE: Outlet and power cord must be visible. Do not route cord behind or through wall or obstructions, as cord may become pinched.
- NOTE: If two or more Door-Aids® are being used on a vertical wheelchair lift, only one circuit is needed for all units used on the lift. However, each Door-Aid® unit must be set to a different receiver/transmitter frequency.

Step Nine

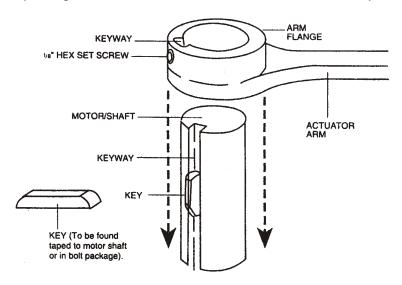
Assembly of Actuator Arm to Motor Shaft

- A. Rotate motor shaft until keyway faces to side of unit.
- B. Insert key into keyway of motor shaft.
- C. Line up actuator arm flange so that flange keyway lines up with motor shaft keyway.
- Slide actuator arm over motor shaft so that key lines up with motor shaft keyway.
- E. When set screw is approximately in middle of key, tighten snugly with hex wrench.



Yellow 1/4 - 20 X 1 5/8" Bolt Found in Bolt Packet.

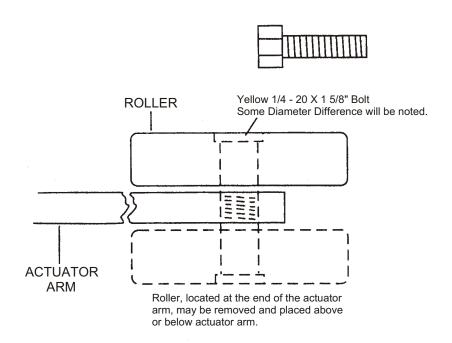
- F. After Door-Aid® installation, it may be necessary to move arm up or down on motor shaft to optimally line up roller on door.
- G. Caution: Do not hammer arm onto motor shaft. If fit is too tight, it usually is due to paint buildup in flange. Remove key and start motor while pushing arm onto motor shaft. This action will clear excess paint.



Caution! A properly installed arm will not loosen. Be sure key is in the motor shaft slot and the 1/8" hex set screw is tightened firmly. Improper installation can lead to the arm dropping to the floor, which may be harmful to pedestrians. Using a smaller hex wrench may tighten the screw temporarily but not permanently.

Step Ten

Note: Roller may be in appropriate position when taken from packing box; if so, proceed to step 11.



Roller removal and reattachment

- A. Remove roller from actuator arm, apply roller to opposite side of actuator arm.
- B. Tighten down tightly.

Step Eleven

Adjustment of Power Controls: There are four adjustable potentiometers ("Pots") which control the Door-Aid® unit. These pots increase clockwise and control hold force, open speed, hold time, and open time. Initially, it may appear that the Door-Aid® lacks the power to push the door. This is because the controls always need adjustment during the installation process. Once adjusted to existing door conditions, no further readjustment should be necessary until door or door closer conditions change due to temperature, weather or wear.

Additional potentiometer located behind middle front four power control pots. Ensure it is turned full clockwise before adjusting power control settings. Please use plastic tools to tune pots.



TO INCREASE. TURN POTS CLOCKWISE

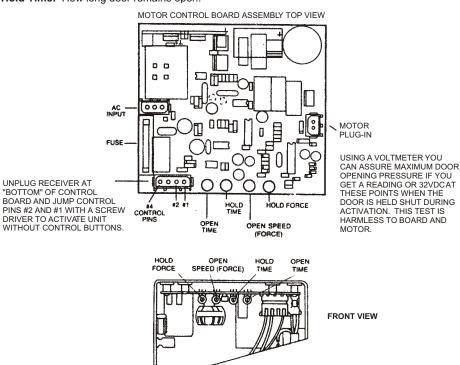
Open Speed: Controls voltage to motor in the open part of the cycle and determines the amount of force needed to open the door fully, and how fast it opens.

Open Time: How long open speed is running. Should be used if its lowest setting will not allow "open speed" to drive the door to 90 degrees. Adjust door angle.

Example: IF the door is desired to reach 90 degrees in five seconds, *reduce* open speed and *increase* open time.

Hold Force: Controls motor voltage, or degree of "push" in the **hold** part of the cycle and keeps door closer from prematurely closing door.

Hold Time: How long door remains open.



- 1. Turn all pots (potentiometers) to lowest settings.
- 2. Work with "open speed" pot first. Rotate pot 1/4 turn clockwise. Push control button. Door should activate. Adjust pot until door reaches 90 degrees, then start closing.
- NOTE: A. Adjust "open speed" so that door reaches 90 in 4 seconds or longer (should be slightly past 1/2 rotation). If door opens past 90 degrees or stays at 90 degrees and holds, decrease open speed and reactivate door until door reaches 90 degrees and immediately closes.
 - B. If door opens further than 90 degrees and has no more adjustment with "open speed" pot (4-5 sec.), then increase back-check pressure on door closer. This will use up extra open time. Adjust pressure on door closer until door reaches 90 degrees in 4-5 seconds, then begins to close.
- 3. Turn "hold time" pot 1/4 rotation, then turn "hold force" pot slightly past 1/8 to 1/4 rotation. Run door opener. Door should reach 90 degrees and stay open a few seconds. With door open at 90 degrees, turn "hold force" pot back (a little bit at a time) until door begins "creeping" back, then turn "hold force" up a little until door stops "creeping" and remains open.
- NOTE: A. If door doesn't "creep" backwards after decreasing "hold force", leave "hold force" setting (as in step 3).
 - B. If door closer has a final back-check adjustment only, increase "hold force" to get door to 90 degree position. A door stop may be needed to hold door at 90 degrees.
- 4. Turn "hold time" to amount of seconds you want door to remain open (usually 7-15 seconds)

WARNING! ANSI regulations (page 1) limit opening force so that a 15 lbs. obstruction can stop the door. Closer adjustments & operator controls should be set accordingly.

Step Twelve

Control Button, Transmitter and Receiver

- Transmitter frequency is generally factory set to coincide with that of the receiver. Should a change be required, please refer to instruction sheet on how to select a frequency by resetting the D.I.P. switches in each device.
- 2. Installing transmitter type control button:
 - A. Recommended distance when door is swinging towrd you is 6'-8'. When door is swinging away, control can be mounted closer. Height of control button is 32"-36".
 - B. Once Door-Aid® has been installed and a desirable location has been decided on for the control button, test Door-Aid® at least five times consecutively from selected control button location before permanently anchoring control button to ensure proper signal response to unit.
 - Use mounting plate of control button as template. Mark and drill pilot holes.
 - D. Bolt mounting plate to surface. At times, plastic screw anchors may provide for a more secure mounting.
 - E. Attach cover with four stainless steel button head screws provided. Place handicap decal on front of control button.
- 3. RB100: If optional premium transmitter is being installed:
 - A. Remove cover and attachment screws from cover box.
 - B. Connect leads to terminal posts on switch. (Some leads may have been factory soldered.)
 - C. Press actuator disk on control button and listen for a "click" sound from within operator. This determines that the operator is receiving the signal. If the sound is not heard in the transmitter, either the battery is too weak, or there is circuit failure. If the receiver is not "clicking", there is either a transmitter/reception problem or a circuit failure within the receiver. Refer to Troubleshooting Guide section of this manual.
- 4. RB200: This optional device is similar to the RB100, minus the actual transmitter. This product is intended for direct wiring to the Door-Aid® operator.

INFORMATION TO USER

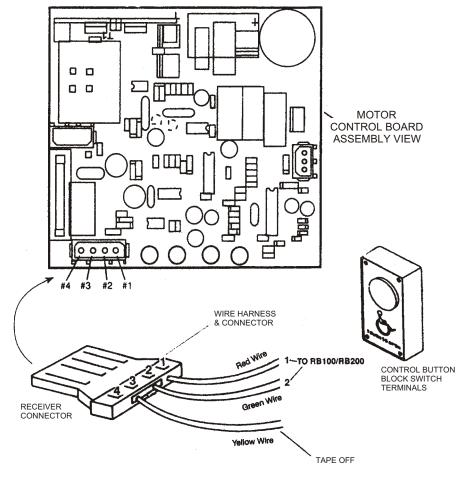
The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance, could void the user's authority to operate the equipment.

Optional direct wiring controls:

When wireless activation is not practical, the RB100 or RB200 model can be direct-wired to the Door-Aid® control board.

To direct-wire remote control button RB100/RB200:

- A. Run grounded conduit (where applicable).
- B. Disconnect receiver.
- C. Cut wire terminal #4 from receiver end of wire. Tape off both ends to ensure prevention of electrical shortage.
- D. Cut wires #1 and #2, approximately 1-1/2" from receiver wire connector plug. (Labeled #1 and #2 on connector plug.)
- E. Connect lead wire #1 to common terminal side of block switch at control button. Connect lead wire #2 to your normally open terminal block switch at control button.



*OPTION: IF COMBINATION DIRECT WIRE/WIRELESS SITUATION IS CALLED FOR, SPLICE INTO WIRES FROM RECEIVER LEADING TO PINS 1 AND 2.

LEAVE PIN WIRE #3 ATTACHED TO RECEIVER

Troubleshooting Guide

Problem:	Source:
Door-Aid® doesn't engage	 AC cord not plugged in an outlet. AC cord not plugged in at control board. DC cord to motor not plugged in at control board. Circuit breaker not switched on. *Blown fuse (unplug Door-Aid® before replacing). Fuse good, no power to pin 1 and 4 at control board.
Unit has power but doesn't engage	 Review steps 1-6 above. Receiver not plugged in at control board. Loose terminals at receiver. Bad battery in transmitter. Open speed not turned up enough. Receiver not picking up transmitter signal.
Unit has power but arm goes in wrong direction	Turn motor plug around. Step 8 B-3.
Receiver signal problems	 Receiver on different code frequency. Receiver not functioning. Broken antenna wire. Will not pick up transmission signal; will hear a clicking sound at receiver if receiver is picking up signal. Transmitter battery weak or dead. See Appendix A.

* Important: when doing any other work inside Door-Aid® other than adjustments, disconnect unit from power, otherwise damage may occur to unit and/or person.

Door-Aid® needs more power 1. See Appendix B.

IMPORTANT:

- Because Door-Aid® is designed to meet ANSI 156.19 for low energy door opener regulations, Door-Aid® must be adjusted to open the door in three seconds or more under normal conditions. When the environment is abnormal, such as strong winds, Door-Aid® has been designed to function as a power assist opener, requiring only a light touch to complete the opening cycle.
- To reduce the risk of electrical shock, this
 equipment has a grounding type plug that
 has a third grounding pin. This plug will
 only fit into a grounding type outlet. If the
 plug does not fit into the outlet, contact a
 qualified electrician to install the proper
 outlet. Do not change the plug in any way.

- Appendex A -

TROUBLESHOOTING TRANSMISSION/RECEPTION PROBLEMS

In a small percent of installations, the receiver and transmitter may have difficulty functioning consistently to trigger the Door-Aid®.

There are various causes among which are:

- 1. Structural metal in the immediate vicinity, which can ground out a quantity of signal enough to hamper consistent operation.
- 2. Local interference which comes in the form of EMR (electro-magnetic radiation) that emanates from computers, microwave antennas, walkie talkies, etc.

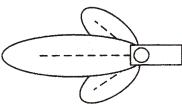
There are other factors which can influence the quality of reception:

- 1. Transmitter position in relation to the Door-Aid®.
- 2. Receiver antenna position.
- 3. Battery strength.

Whatever the cause, the following is a list of potential solutions.

Transmitter suggestion:

1. The transmitter has a 3-lobe transmission pattern with the strongest lobe in the center and the secondary lobes, which are substantially weaker, emanating at 45 degrees from the end of the transmitter (see diagram).



Make sure you are installing the button as close as possible to the Door-Aid®. Normally the button is upright which means the strongest signal goes directly upwards. We are dependent on the secondary signals to reach the receiver. Try the button in a horizontal position as shown in the diagram.

Antenna suggestions:

- 1. Uncoil antenna and exit through chassis above Door-Aid®. Make sure at least 1 inch of antenna is out of the Door-Aid®.
- 2. Verify that there is a direct signal transmission line from antenna to transmitter.

- Appendix A cont. -

Battery Eliminator

Some dealers have reported excellent results by using a battery eliminator to power the transmitter. They drill a hole through the wall and use a DC plug-in transformer. This does two things:

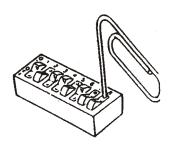
- A. Keeps the output up in extreme cold temperatures.
- B. Usually boosts transmission output and all but guarantees better reception. This may be due to a somewhat higher DC voltage, which increases power.

Erratic Operation:

- A. Sometimes a weak signal may trigger the Door-Aid® only part of the time. This condition may be caused by a weak battery. Sometimes stray EM signals tend to occupy the receiver at the moment the button is pushed. Although the unwanted signal is usually rejected, the real signal is not given a chance to "connect." This is evident when you push the button two or three times in succession before the connection is made.
- B. An easy way to diagnose the situation is to disconnect the receiver (at the control board) first and see if the behavior stops. If it does, reconnect the receiver plug and alternately remove the battery from the transmitter buttons. This will isolate the offending transmitter.

Dip Switch:

It has been found that having all the toggles on the dip switch in the <u>ON or OFF</u> position can improve marginal reception. Remember to do this also to the transmitters. If there is a Door-Aid® nearby which you wish to operate independently, toggle only one switch opposing the rest. This idea is to have most of the switches either ON or OFF.



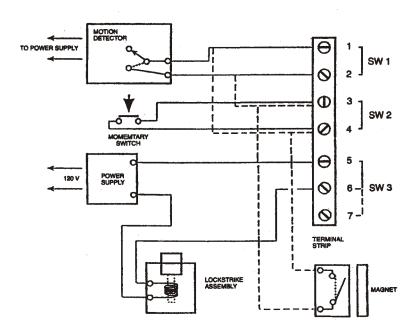
- Appendix A cont. -

TERMINAL STRIP KEY AND DEFINITIONS:

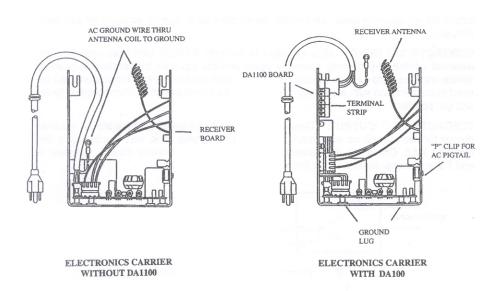
CONTACTS 1,2: INPUT. When closed, these will override (disable) all functions and B1000S Door-Aid® will not open. This safety feature prevents a person from being struck by an opening door. Triggering device can be a motion detector or pressure mat, etc.

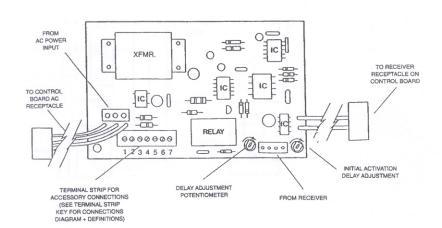
CONTACTS 3,4: INPUT. May be used to activate B1000S unit from one or more external devices by placing normally open contact sources in parallel. Triggering device may be card-key, momentary switch, motion detector, etc. This feature can be used in combination with a security-type magnet and reed switch to incorporate a "push and go" function.

CONTACTS 5,6,7: OUTPUT. These contacts are to be used to complete an external device function, such as an electric lock strike, magnetic lock, etc. Contact 5 is the common lead. Contact 6 is normally open. Contact 7 is normally closed.



- Appendix B -





DOOR-AID® CORPORATION LIMITED WARRANTY

Door-Aid® Corporation warrants to the original purchaser that the Door-Aid® is free from defects in material and workmanship, and agrees to replace any defective Door-Aid® component free of charge within the time period from the date of purchase.

Gearmotor: ONE YEAR - see note below Electronics, chassis and peripherals : ONE YEAR

This warranty is not transferrable and does not cover damage resulting from any defects other than material or workmanship, damage caused by unreasonable use or improper installation.

Any implied warranty of merchantability or otherwise applicable to this product, is limited in duration to the period of this written Warranty. Door-Aid® Corporation shall not be liable for any special, incidental, or consequential damages. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you.

HOW TO OBTAIN WARRANTY SERVICES:

If warranty service is needed, check with the Door-Aid® distributor from whom you purchased Door-Aid®. Information concerning Door-Aid® may also be obtained in writing:

Door-Aid® Corporation 7700 Sprinkle Road Portage, MI 49002 269-324-5978 800-493-8377

This warranty is given by Door-Aid® Corporation, Portage, MI 49002.

This warranty gives you specific legal rights, and there may also be other rights which vary from state to state.

IMPORTANT!

Should Door-Aid® fail, do not remove unit from installation! Call Service for help instructions first. Return authorization number is required for all returned items. Non-authorized returns may be rejected.

NOTE: All motor repair issues will be addressed by sending motor in to Door-Aid® for repair review - No motor exchanges will be done before hand.

Door-Aid® Corporation

7700 Sprinkle Road • Portage, MI 49002 (269) 324-5978 • (800) 493-8377



RB100 Attachment Post