GENERAL INFORMATION
The Alliance Tenna-Rotor® Model U-100 is a fully automatic unit. The control knob is turned to the desired direction and the rotor automatically rotates the antenna to that position and stops. The dial lights up when the direction is selected and turns off when the antenna reaches that position. The unit operates at a speed of 1 RPM and is equipped with a motor brake to prevent drifting or windmilling. The U-100 rotor can be identified by the blue weathershield and the model U-100 stamped into the metal housing. The U-100 control can be identified by the Model number U-100 stamped on the bottom of the control. The U-100 Rotor and Control are not interchangeable with any of the former Alliance Models.

PLEASE NOTE:
Although some U-100 parts are interchangeable with the parts used on the U-98, many of the important or critical parts are not. Check the U-100 parts list before replacing any parts. For example—the transformer, solenoid, capacitor, frame and dial assembly, and the motor are different and cannot be interchanged with parts used on any of our other models.

The outward appearance of the U-100 is identical with the U-98 so be sure to check model number on bottom of the control and model number stamped in rotor housing when ordering replacement units or parts. Note: The U-100 Rotor can be used only with the U-100 control and Vice Versa.

SERVICING PROCEDURE
Power-off Checks
1. Viewing from front, left pawl (Item No. 121) should clear slotted escapement disc by .010 inch to .035 inch with solenoid in energized position.
2. Right pawl (Item No. 121) should clear slotted escapement disc by .010 inch to .035 inch with solenoid in de-energized position.
3. Left pawl must come to rest in any given stop position. After stop position is reached, depress plunger in solenoid by hand to make sure pawl drops freely into slot. Adjustment is made by moving indent spring assembly (Item No. 133).
4. Contact spring (Item No. 27) in the rotor unit must make contact only when cam lobe (Item No. 41) comes in contact with the switch. If shaft assembly (Item 6) is removed from the rotor unit, cam lobes must be 1/2 turn away from contact points in end-stop position in both directions. See Fig. 53.
5. Be sure that four-conductor cable is connected to proper terminals. Terminal No. 1 in the rotor connects to No. 1 on the control case and so on with Nos. 2, 3, and 4.
6. Check length and size of four conductor cable. See Figure 4.
7. Primary input contacts should be .020 inch apart. Adjustment can be made at factory only.
8. Red pointer on dial face should point to the direction which corresponds with the antenna at the stop position. This adjustment is made by removing the knob and inserting a narrow tool through the elongated radial slot to the gripping holes in the pointer and turning the pointer to the correct position.
Power-on Checks
1. Line voltage should be approximately 115 volts.
2. Turn knob (Item No. 103) to extreme counterclockwise stop. Solenoid must not buzz and mechanism must move correctly, no sticking or slipping. Rotator must turn to extreme counterclockwise stop and light must turn off when rotator reaches the top. If the light does not turn off, synchronize unit per instructions on bottom of control case.

VOLTAGE CHART
Conditions of measurement:
- Line Voltage ............. 117 VAC
- Tolerance ............... ± 10%
- Measured values at control box terminals

1. Control Only—Conductor Cable disconnected
   - Terminal #1—#2: 0 V
   - Terminal #1—#3: 29 VAC
   - Terminal #1—#4: 0 V
   - Terminal #2—#3: 29 VAC
   - Terminal #2—#4: 0 V
   - Terminal #3—#4: 29 VAC

2. Locked Rotor—100 feet of #20 A.W.G. 4 conductor cable connected to control and rotor. With rotor at full clockwise position, turn control knob counterclockwise. While rotor is turning, press reset button twice. This will throw the unit “out of synchronization.” Return knob to full clockwise position to make voltage checks. Warning: Control should be left “out of synchronization” only long enough to make the voltage checks, then re-synchronize.
   - Terminal #1—#2: 20 VAC
   - Terminal #1—#3: 18 VAC
   - Terminal #1—#4: 0 V
   - Terminal #2—#3: 15 VAC
   - Terminal #2—#4: 20 VAC
   - Terminal #3—#4: 17 VAC

With rotor turning counterclockwise, a pulsing reading of 20 to 25 volts will be read between terminals #1 and #4.

3. Locked Rotor—100 feet of #20 A.W.G. 4 conductor cable connected to control and rotor. With rotor at extreme counterclockwise position, turn control knob clockwise.
   - Terminal #1—#2: 19 VAC
   - Terminal #1—#3: 15 VAC
   - Terminal #1—#4: 19 VAC
   - Terminal #2—#3: 17 VAC
   - Terminal #2—#4: 0 V
   - Terminal #3—#4: 16 VAC

With rotor turning clockwise, a pulsing reading of 20 to 25 volts will be read between terminals #2 and #4.
   - Re-synchronize unit immediately after checking.

TROUBLE SHOOTING CHART Continued

<table>
<thead>
<tr>
<th>TROUBLE</th>
<th>CAUSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotator fails to operate when knob is turned to desired direction.</td>
<td>If motor is operating: Check gear train for improper meshing or slippage.</td>
</tr>
<tr>
<td></td>
<td>If motor is inoperative: Press tuning spring—if box mechanism operates properly, the trouble is not in the solenoid, transformer, or the mechanical parts of the escape ment assembly.</td>
</tr>
<tr>
<td></td>
<td>Check input contacts to be sure they are closed.</td>
</tr>
<tr>
<td></td>
<td>Check terminals 1-3, or 2-3, depending upon desired direction of rotation for approximately 18 to 20 volts.</td>
</tr>
<tr>
<td></td>
<td>Check contact springs on the frame assembly for proper contact with rings.</td>
</tr>
<tr>
<td></td>
<td>Check capacitor in control.</td>
</tr>
<tr>
<td></td>
<td>Check contact switch in rotor for proper operation. Switch should close when cam lobe hits switch blade.</td>
</tr>
<tr>
<td></td>
<td>Check motor for shorts or open connections.</td>
</tr>
</tbody>
</table>
Fig. 55. Exploded View of Model U-100 Rotator Unit.

Fig. 56. Exploded View of Model U-100 Control Box.

Fig. 54. Bottom View of Model U-100 Control Box Showing Terminal Strip.
U-100 CONTROL CHANGE NOTICE

Since October 1969, a new fiberglass reinforced polypropylene base has been used on a portion of our production of the U-100 control. When present supply of metal bases is depleted, all U-100 controls will have the new base.

Parts List Changes

Complete Control Assembly—Part No. 18649-R
Base Assembly—Part No. 18647-R

The base assembly 18647-R consists of and replaces the following parts:

Base Plate 8914-R
Terminal Strip 3803-S
Tuning Spring 5563-A
Light Socket 5558-A
Capacitor Clip 8903-A
Bumpers 18174-A

U-100 PARTS LIST

<table>
<thead>
<tr>
<th>ITEM</th>
<th>NAME</th>
<th>PART NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rotor Complete</td>
<td>8910-R</td>
</tr>
<tr>
<td>1</td>
<td>Housing Assembly RH</td>
<td>5454-R</td>
</tr>
<tr>
<td>2</td>
<td>Housing Screws, 10-32 x 3/4</td>
<td>3429-N</td>
</tr>
<tr>
<td>3</td>
<td>Clamping Plate</td>
<td>5456-A</td>
</tr>
<tr>
<td>4</td>
<td>Nut, Hex, 3/8 x 20</td>
<td>8100-E</td>
</tr>
<tr>
<td>5</td>
<td>Weathershield</td>
<td>3373-F</td>
</tr>
<tr>
<td>6</td>
<td>Shaft Assembly</td>
<td>9373-R</td>
</tr>
</tbody>
</table>

* Late models use case, Part No. 18147-A. Interchangeable with early models.
** Complete Detent and Spring Motor assembly consists of Items 119 and 119A, Part No. 18055-R.
*** New heavy-duty hardware. When replacing old hardware, order complete set; i.e., (2) 18291-A U-bolts, (2) 18292-R mast clamps, and (4) 8100-E hex nuts.