Rubik 3x3x3 Six Step Solution

Notation: L (left), R (right), F (front), B (back), U (up), D (down) for 90 degree clockwise rotation of that face; a – means counterclockwise and a 2 means do it twice. Corners are named with three letters and edges are named with two letters (e.g., FR means looking at the front, it is the edge on the right).

1. Solve the down layer.

2. Solve the middle layer:
   Rotate the middle so centers are correct, and then use the edge mover sequence to move edges between the up and middle layers until the middle is solved; if an edge first needs to be flipped, move it be FU and do the edge flipper sequence of Step 3 (the edge will end up flipped at position UR, and you can rotate the top to move it back to FU):
   
   edge mover, FU -> FR:  (U R) (U- R-) , (U- F-) (U F)

3. Flip the up edges so they all have the correct color on top:
   If no up edges have correct top color, first do the edge flipper. Now position the cube so UL has correct top color and UF does not, and do the edge flipper at most two times.

   edge flipper:  F (R U) (R- U-)  F-

4. Move the up layer edges to their correct positions:
   As needed, re-position the cube and use the edge swapper sequence.

   edge swapper, UF<>UL:  (R U) (R- U) (R U^2) (R- U)

5. Position the up layer corners:
   The corner cycle sequence leaves UFR alone and cycles the other three counterclockwise. Identify one corner that is correct (but may be rotated), or if there is not one, do the corner cycle. Then re-position the cube so the correct corner is UFR, and then do the corner cycle one or two times to make all corners correct.

   corner cycle:  (U R) (U- L-) (U R-) (U- L)

6. Rotate the up layer corners:
   Position the cube so UFR is not correct and repeat these two steps until all corners correct:

   A. Repeat the corner rotator until the UFR corner is correct:

      corner rotator:  R- D- R D

   B. Rotate the up layer so that UFR is incorrect.

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