



INSTRUCTION TO SERVICE

ITS: 60309	
SECTION:	420-Exterior Applied Parts
WRITTEN BY:	Scott Geier
SUBJECT:	Replace Comotech wiper motors to Sprague wiper motors

ITS- 60309

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PROCEDURE:

1. Turn the master run switch to the off position and wait 5 minutes before proceeding.
2. Turn the 12/24V battery disconnect and HV Interlock switch to the "OFF" position (If applicable).
3. Gently pull the wiper arm body away from the windshield and place small pin or punch in the hole located in the wiper arm to retain the tension on the arm. See Figure 1.
4. Gain access to the windshield washer hose and disconnect. See Figure 1.
5. Remove and discard the bolt to the lower wiper arm assembly clamp attached to the wiper motor splined shaft. See Figure 1.
6. Remove the Acorn nut and washer from the wiper arm shaft assembly and discard. See Figure 1.
7. Remove the set screw and cap from the low idle arm and discard. Do not discard the flat washers and spring washers. See Figure 1.
8. Remove wiper arm assembly and set aside for reinstallation.
9. Remove the spanner nut, bracket assembly, and gasket. Set aside for reinstallation. See Figure 1.

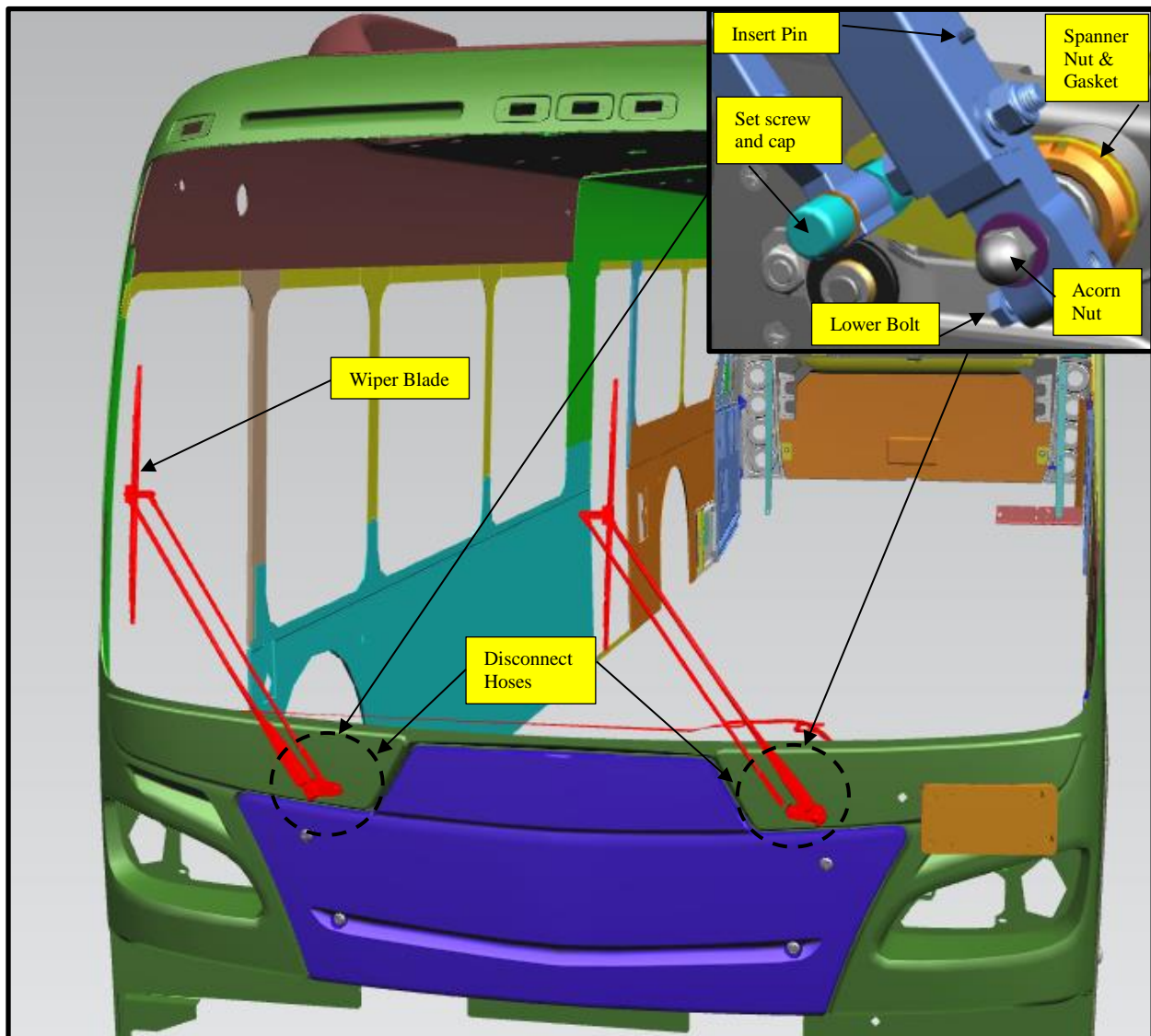


Figure 1: Wiper motor location reference.

10. Disconnect both wiper motor electrical harnesses.
11. Gain access to the wiper motors and remove Items #1 Bolts, #2 Washers and #3 Nuts. Discard hardware. See figure 2.
12. Remove the wiper motors and bracket assembly from the bus, then place on a work bench.

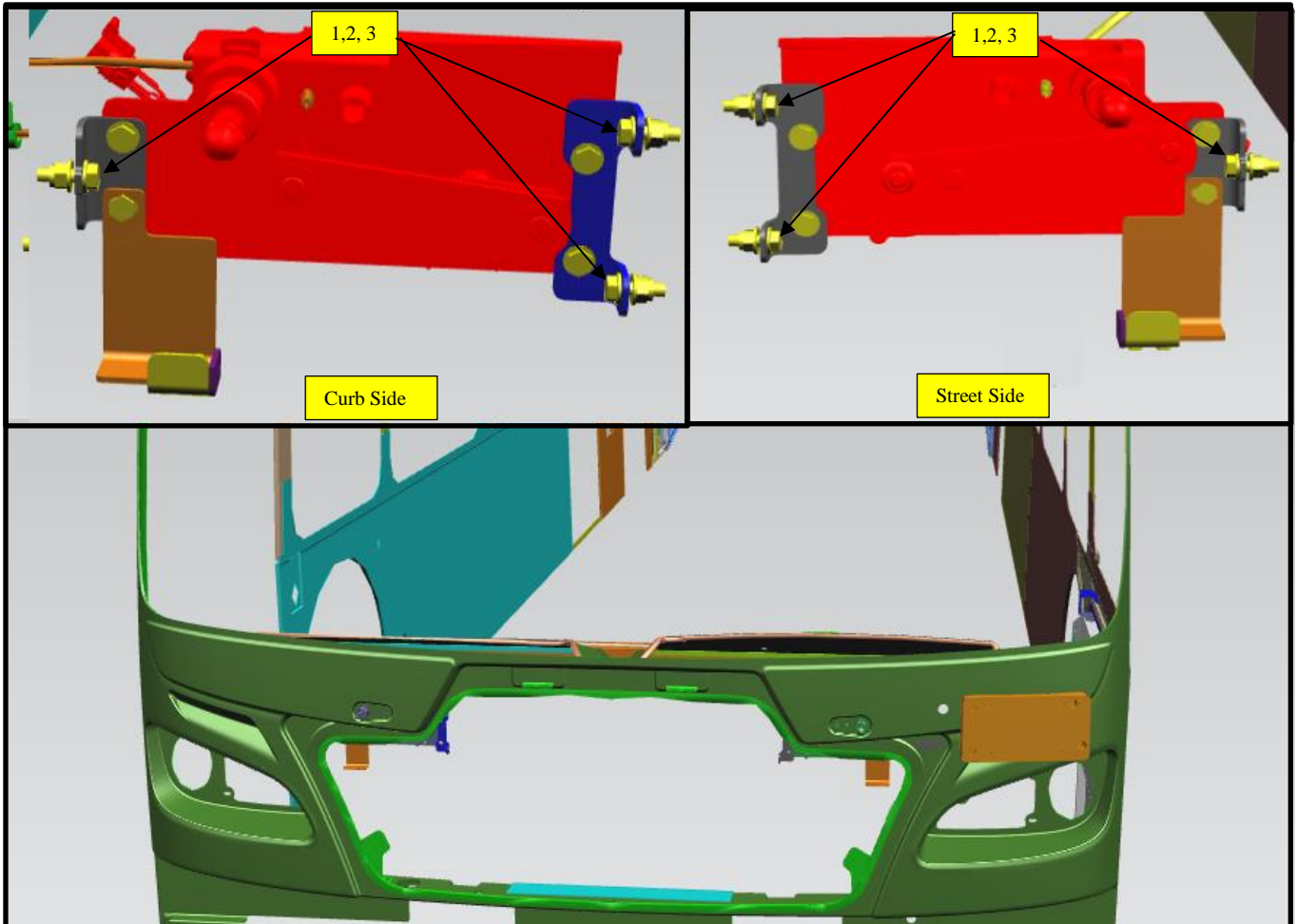


Figure 2: Wiper motor removal location reference.

Item	Part Number	Description
1	20B05016	Bolt SST 5/16 x 1.0
2	50W05000	Washer Flat SST 5/16
3	42N05000	Nut Nylock 5/16 SST



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13. Remove items #5 flange nut and discard, then remove the wiper linkage from the wiper motor shaft.
14. Remove item #6 Philips head screws (x3 per wiper motor) and discard. Remove the wiper motor from the bracket assembly.
15. Install wiper motor (Item #10 NF PN: 225892) to the curbside and streetside bracket assembly. Secure wiper motors to the bracket assembly using Philip head hardware (Item #6 NF PN: 6344058, x3 per wiper motor). Apply 1-2 drops of Loctite (Item # 12 NF PN: 081034) to the hardware threads.
16. Reinstall wiper linkage to the wiper motor shaft and secure using flange locknut (Item #6 NF PN: 6339700).

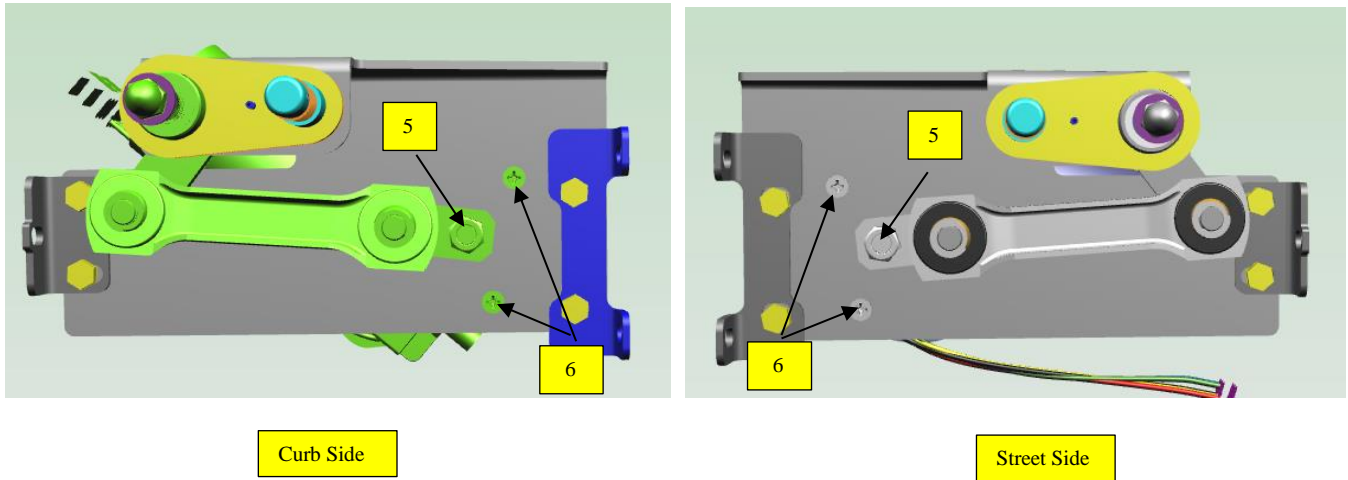


Figure 3: Wiper motor to bracket removal location reference.

Item	Part Number	Description
5	6339700	Lock flanged nut
6	6344058	Philips head screws
10	225892	Wiper Motor
12	081034	Loctite Med 243



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17. Install C/S and S/S wiper Motor with bracket assembly in the bus, and secure using hardware 5/16 SST bolt (#1 NF PN: 10B05016), 5/16 SST flat washer (#2 NF PN: 50W05000), and 5/16 nylock nuts (#3 NF PN: 42N05000). Torque hardware to 24 ft-lbs. See figure 4.

NOTE: Ensure the motors lines up with the front mask holes before tightening the hardware. Loosen hardware to make necessary adjustments.

18. Reconnect the wiper motors harnesses to the bus harnesses.

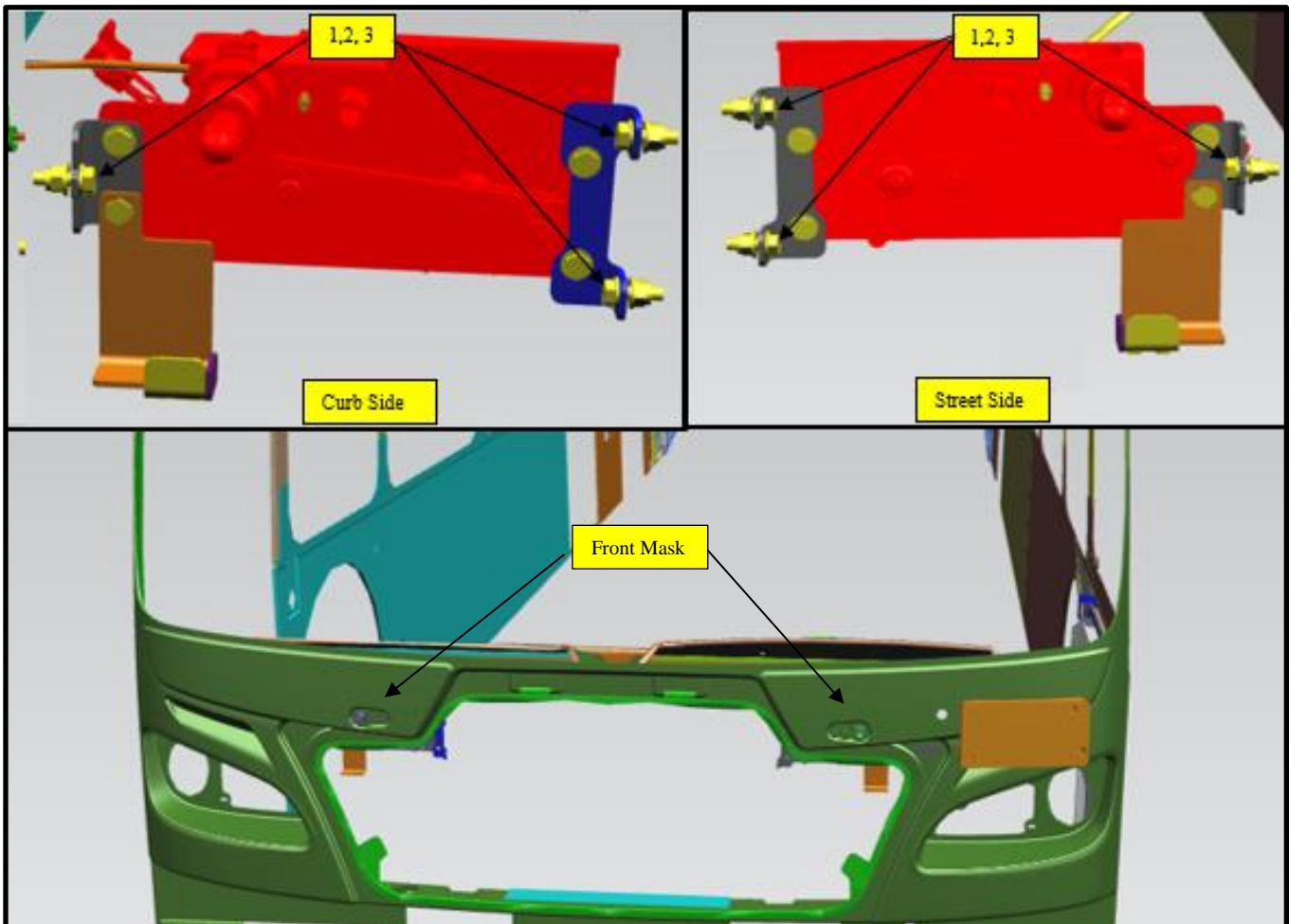


Figure 4: Wiper motor mounting location reference.

Item	Part Number	Description
1	10B05016	Bolt SST 5/16 x 1.0
2	50W05000	Washer Flat SST 5/16
3	42N05000	Nut Nylock 5/16 SST



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19. Reinstall outer gasket #13, outer spacer #14 on the wiper motor shaft and apply Sealant Butyl (#15 NF PN: 061837) where the outer spacer (Wiper Arm Base) goes through the Mask.
20. Secure by reusing spanner nut #16. Torque spanner nut to 10-12 ft-lbs. See Figure 5.

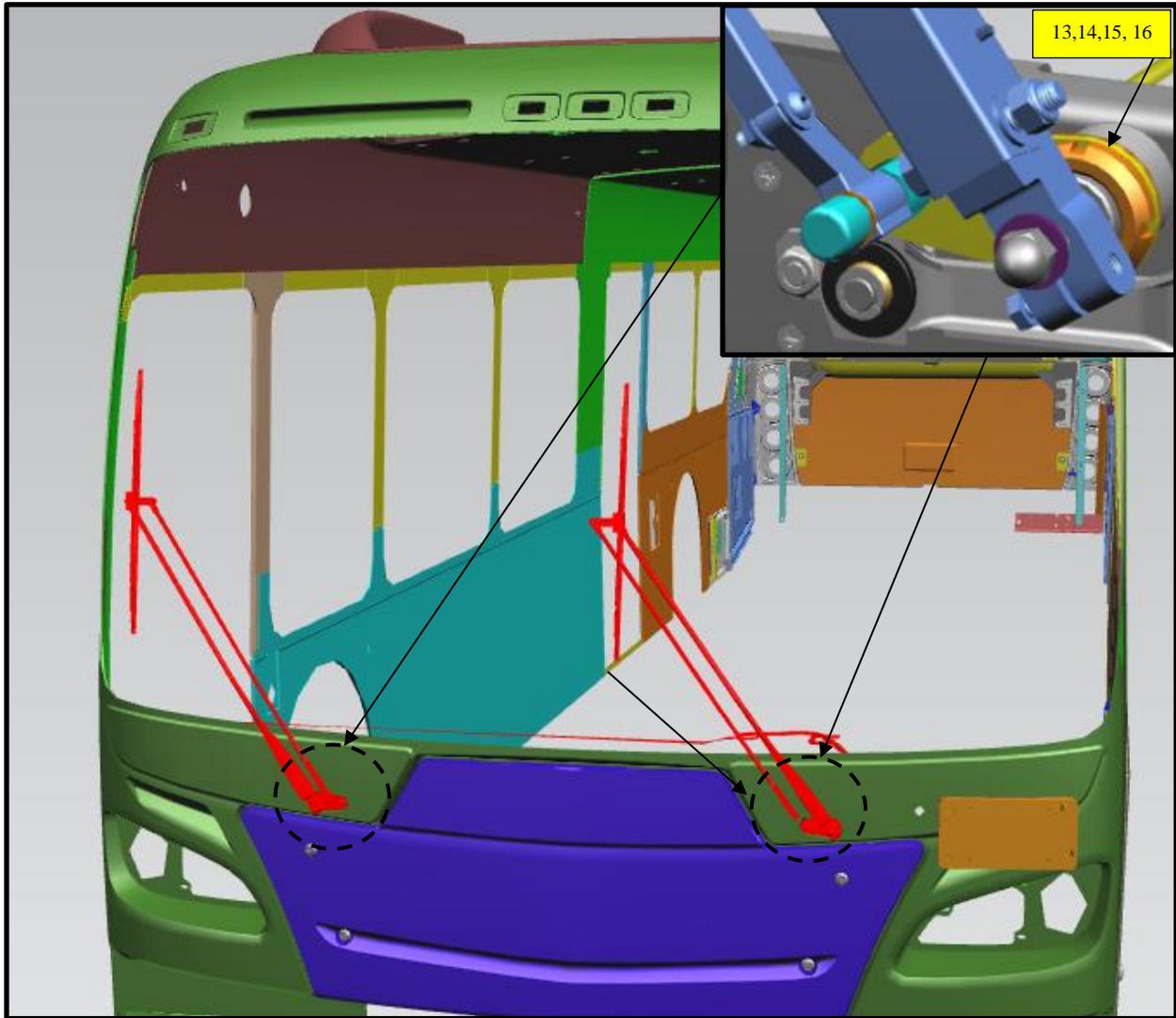


Figure 5: Spanner nut, spacer, and gasket location reference.

Item	Part Number	Description
13	5911024	Outer Gasket
14	087208	Spacer Outer Wet Wiper Base
15	061837	Sealant Butyl
16	204322	Nut Spanner Lock

21. Turn the bus power on and cycle the wiper motors to the park position.
22. Reinstall both wiper arm assemblies to the wiper motor shaft. Adjust both wiper arms (Item #18) to 5.5 inches from the center of the windshield. See figure 6.
23. Apply Loctite (Item #12 NF PN: 081034) to the lower wiper arm assembly clamp bolt threads. Torque lower wiper arm clamp bolt to 155-165 in-lbs.
24. Install nylon washer (#19 013935) and Acorn nuts (Item #21 NF PN: 062133). Apply Never Seize (Item #20 NF PN: 5928660) to the threads. Torque the Acorn nuts to 60 in-lbs.
25. Reinstall the spring washer and flat washer to the lower idle arm and secure using Cap (NF PN: 6465828) and set screw (NF PN: 6465825).
26. Re-connect the windshield washer hoses.
27. Function test the wipers.
28. Return the bus to service.

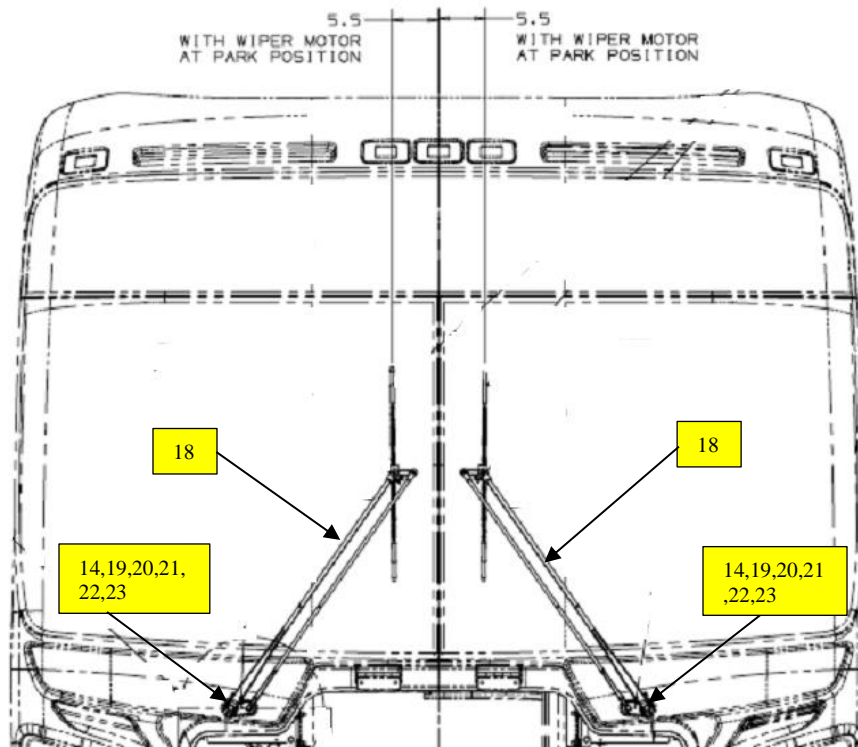


Figure 6: Wiper arm mounting location reference.

Item	Part Number	Description
14	087208	Spacer Outer Wet Wiper Base
18	086238	Wiper Arm
19	013935	Washer Nylon
12	081034	Loctite Med 243
20	5928660	Never Seize
21	062133	Acorn Nut 3/8-24
22	6465828	Cap, Aluminum
23	6465825	Screw, M4 x 0.8 x 12



LABOUR ESTIMATE

Item	Operation	Men	Hours	Labor Time M X HR
1	Replace Comotech wiper motors to Sprague wiper motors	1	1.50	1.50

PARTS REQUIRED

Item	Part Number	Description	Qty. per Coach	Units	Notes
1	10B05016	Bolt SST 5/16 x 1.0	6	EA	
2	10W05000	Washer Flat SST 5/16	12	EA	
3	40N05000	Nut Nylock 5/16 SST	6	EA	
5	081034	Loctite Med 243	0.010	EA	
6	061837	Sealant Butyl	0.010	EA	
7	013935	Washer Nylon	2	EA	
8	5928660	Never Seize	0.010	EA	
9	062133	Acorn Nut 3/8-24	2	EA	
10	225892	Wiper Motor	2	EA	
11	6339700	Lock Flange Nut	2	EA	
12	6344058	Philips head screws	6	EA	
13	6465828	Cap, Aluminum	2	EA	
14	6465825	Screw, M4 x 0.8 x 12	2	EA	