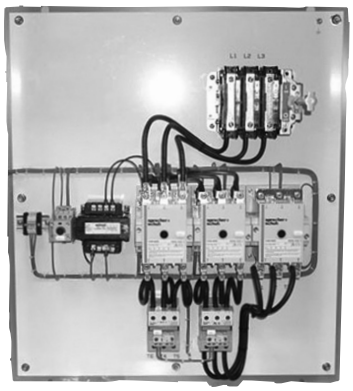
Multispeed Starters

Versatile starters for any multispeed motor or application

Sprecher + Schuh multispeed starters can produce multiple constant speeds by specially arranging the windings of multispeed motors. Motors with two separate windings or one reconnectable winding can be used.

All Sprecher + Schuh multispeed starters feature our CAT7 and CAT9 motor starters. These compact starters offer intermediate sizes to better match specific motor requirements. This equates to generous wiring space and less wasted horsepower capacity. Advanced CEP7 solid state overload relays are used with starters. See Section B in this catalog for a full description of these excellent motor protection relays.



Custom 2-speed, 1-winding combination starter with control transformer and deceleration relay, mounted in a Type-1 enclosure

Choose the right starter for your application

Multispeed motors fall into three types, all with differing torque characteristics. Selecting the proper type depends on the connected load.

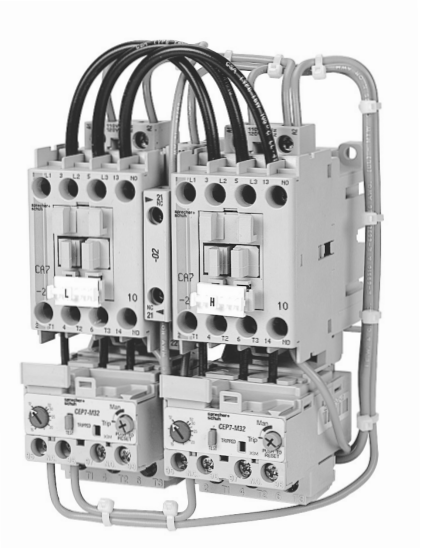
Constant Torque motors deliver the same torque at each speed, and horsepower varies directly with the speed. Typical applications include reciprocating pumps, conveyors, mills and mixers.

Constant Horsepower motors deliver the same horsepower at each speed and the torque varies inversely with the speed. Typical applications include machine tools such as drills, lathes, mills, punch presses and saws.

Variable Torque (variable horsepower) motors deliver a torque that varies directly with the speed and the horsepower varies directly with the square of the speed. Typical applications include centrifugal pumps, fans and blowers.

Control options

The four common forms of control for multispeed starters are known as selective, compelling, progressive and decelerating. Standard multispeed starters are wired for selective control. The other control options are available as factory modifications.



Selective Control permits starting the motor on any desired speed. To increase the speed of a running motor, press the desired speed button. To change to a lower speed, the STOP button must be pressed before selecting a new speed.

Compelling Control requires that the motor always be started at the lowest speed. To reach higher speeds, the push buttons must be operated in the speed sequence. To change to a lower speed, the STOP button must be pressed before selecting a new speed.

Progressive Control provides automatic, timed acceleration of the motor to the selected speed by energizing the windings progressively from the lowest to the desired speed. To change to a lower speed, the STOP button must be pressed before selecting a new speed.

Decelerating Control provides automatic time delay to a lower speed. This type of control allows the motor to decelerate from a high speed before automatically restarting the motor in a lower speed. Decelerating Control prevents damage to the motor or machine when high inertia loads are switched to a lower speed.

Contact your Sprecher + Schuh representative for more information.

Two Separate Windings CAZTT7/CAZTT9 & CAZHT7/CAZHT9 ❸

Maximum Horsepower Three Phase				Open Type		Type 1 General Purpose		DIM	Type 12 [Type 3R ❷] Industrial Dusttight		DIM	Type 4 Watertight		DIM	Type 4X Watertight Corr Resist Non-metallic		DIM
200V	230V	460V	575V	Catalog No.	Price	Catalog No.	Price	❶	Catalog No.	Price	❶	Catalog No.	Price	❶	Catalog No.	Price	❶
Constant or Variable Torque - CAZTT ❸																	
				CAZTT		CAZTT			CAZTT			CAZTT			CAZTT		
2	2	5	7 1/2	7-9-✱-◆	577.43	7-9-✱-◆-G0	825.78	M	7-9-✱-◆-D0	867.68	M	7-9-✱-◆-W0	908.56	N	7-9-✱-◆-C0	867.68	U1
3	3	7 1/2	10	7-12-✱-◆	619.33	7-12-✱-◆-G0	867.68	M	7-12-✱-◆-D0	908.56	M	7-12-✱-◆-W0	950.46	N	7-12-✱-◆-C0	908.56	U1
5	5	10	15	7-16-✱-◆	661.23	7-16-✱-◆-G0	908.56	M	7-16-✱-◆-D0	950.46	M	7-16-✱-◆-W0	991.34	N	7-16-✱-◆-C0	950.46	U1
5	7 1/2	15	15	7-23-✱-◆	742.99	7-23-✱-◆-G0	991.34	M	7-23-✱-◆-D0	1,033.24	M	7-23-✱-◆-W0	1,074.12	N	7-23-✱-◆-C0	1,033.24	U1
7 1/2	10	20	25	7-30-✱-◆	908.56	7-30-✱-◆-G0	1,156.90	M	7-30-✱-◆-D0	1,198.81	M	7-30-✱-◆-W0	1,223.33	O	7-30-✱-◆-C0	1,181.43	U1
10	10	25	30	7-37-✱-◆	1,074.12	7-37-✱-◆-G0	1,322.47	M	7-37-✱-◆-D0	1,363.35	M	7-37-✱-◆-W0	1,314.29	O	7-37-✱-◆-C0	1,272.39	U1
10	15	30	30	7-43-✱-◆	1,238.66	7-43-✱-◆-G0	1,569.79	M	7-43-✱-◆-D0	1,652.57	M	7-43-✱-◆-W0	1,734.33	O	7-43-✱-◆-C0	1,694.48	U1
15	20	40	40	7-55-✱-◆	1,312.25	7-55-✱-◆-G0	1,642.35	M	7-55-✱-◆-D0	1,726.16	M	7-55-✱-◆-W0	1,807.92	O	7-55-✱-◆-C0	1,767.04	U1
15	20	40	50	7-60-✱-◆	1487.01	7-60-✱-◆-G0	1,982.68	C	7-60-✱-◆-D0	2,065.46	O	7-60-✱-◆-W0	2,106.34	O	7-60-✱-◆-C0	2,106.34	V1
20	25	50	60	7-72-✱-◆	1,652.57	7-72-✱-◆-G0	2,123.72	C	7-72-✱-◆-D0	2,205.48	O	7-72-✱-◆-W0	2,230.00	O	7-72-✱-◆-C0	2,230.00	V1
25	30	60	60	7-85-✱-◆	1,818.14	7-85-✱-◆-G0	2,289.28	C	7-85-✱-◆-D0	2,371.04	O	7-85-✱-◆-W0	2,395.57	O	7-85-✱-◆-C0	2,395.57	V1
30	30	75	75	7-97-✱-◆	1936.69	7-97-✱-◆-G0	2,407.83	C	7-97-✱-◆-D0	2,489.59	O	7-97-✱-◆-W0	2,514.12	O	7-97-✱-◆-C0	2,514.12	V1
30	40	75	100	9-116-✱-◆ ❹	3,925.50	9-116-✱-◆-G0 ❹	4,959.77	E2	9-116-✱-◆-D0 ❹	5,461.57	R2	9-116-✱-◆-W0 ❹	5,546.39	R2	9-116-✱-◆-C0 ❹	5,290.89	W2
40	50	100	125	9-146-✱-◆ ❹	4,554.03	9-146-✱-◆-G0 ❹	5,752.84	G	9-146-✱-◆-D0 ❹	6,335.38	T	9-146-✱-◆-W0 ❹	6,433.49	T	9-146-✱-◆-C0 ❹	6,137.11	X1
Constant Horsepower - CAZHT ❸																	
				CAZHT		CAZHT			CAZHT			CAZHT			CAZHT		
1 1/2	1 1/2	3	5	7-9-✱-◆	577.43	7-9-✱-◆-G0	825.78	M	7-9-✱-◆-D0	867.68	M	7-9-✱-◆-W0	908.56	N	7-9-✱-◆-C0	867.68	U1
2	2	5	7 1/2	7-12-✱-◆	619.33	7-12-✱-◆-G0	867.68	M	7-12-✱-◆-D0	908.56	M	7-12-✱-◆-W0	950.46	N	7-12-✱-◆-C0	908.56	U1
3	3	7 1/2	10	7-16-✱-◆	661.23	7-16-✱-◆-G0	908.56	M	7-16-✱-◆-D0	950.46	M	7-16-✱-◆-W0	991.34	N	7-16-✱-◆-C0	950.46	U1
3	5	10	10	7-23-✱-◆	742.99	7-23-✱-◆-G0	991.34	M	7-23-✱-◆-D0	1,033.24	M	7-23-✱-◆-W0	1,074.12	N	7-23-✱-◆-C0	1,033.24	U1
5	7 1/2	15	20	7-30-✱-◆	908.56	7-30-✱-◆-G0	1,156.90	M	7-30-✱-◆-D0	1,198.81	M	7-30-✱-◆-W0	1,223.33	O	7-30-✱-◆-C0	1,181.43	U1
7 1/2	7 1/2	20	25	7-37-✱-◆	1,074.12	7-37-✱-◆-G0	1,322.47	M	7-37-✱-◆-D0	1,363.35	M	7-37-✱-◆-W0	1,314.29	O	7-37-✱-◆-C0	1,272.39	U1
7 1/2	10	25	25	7-43-✱-◆	1,238.66	7-43-✱-◆-G0	1,569.79	M	7-43-✱-◆-D0	1,652.57	M	7-43-✱-◆-W0	1,734.33	O	7-43-✱-◆-C0	1,694.48	U1
10	15	30	30	7-55-✱-◆	1,312.25	7-55-✱-◆-G0	1,642.35	M	7-55-✱-◆-D0	1,726.16	M	7-55-✱-◆-W0	1,807.92	O	7-55-✱-◆-C0	1,767.04	U1
10	15	30	40	7-60-✱-◆	1,487.01	7-60-✱-◆-G0	1,982.68	C	7-60-✱-◆-D0	2,065.46	O	7-60-✱-◆-W0	2,106.34	O	7-60-✱-◆-C0	2,106.34	V1
15	20	40	50	7-72-✱-◆	1,652.57	7-72-✱-◆-G0	2,123.72	C	7-72-✱-◆-D0	2,205.48	O	7-72-✱-◆-W0	2,230.00	O	7-72-✱-◆-C0	2,230.00	V1
20	25	50	50	7-85-✱-◆	1,818.14	7-85-✱-◆-G0	2,289.28	C	7-85-✱-◆-D0	2,371.04	O	7-85-✱-◆-W0	2,395.57	O	7-85-✱-◆-C0	2,395.57	V1
25	25	60	60	7-97-✱-◆	1,936.69	7-97-✱-◆-G0	2,407.83	C	7-97-✱-◆-D0	2,489.59	O	7-97-✱-◆-W0	2,514.12	O	7-97-✱-◆-C0	2514.12	V1
~	30	60	75	9-116-✱-◆ ❹	3,934.70	9-116-✱-◆-G0 ❹	4,949.55	E2	9-116-✱-◆-D0 ❹	5,461.57	R2	9-116-✱-◆-W0 ❹	5,546.39	R2	9-116-✱-◆-C0 ❹	5,290.89	W2
30	40	75	100	9-146-✱-◆ ❹	4,564.25	9-146-✱-◆-G0 ❹	5,741.60	G	9-146-✱-◆-D0 ❹	6,335.38	T	9-146-✱-◆-W0 ❹	6,433.49	T	9-146-✱-◆-C0 ❹	6,137.11	X1

Larger sizes available. Contact your Sprecher + Schuh representative.

NOTE: Catalog numbers and enclosure dimensions reflect contactors with AC coils. For DC coils, select Coil Code from the DC Coil Code table on page C104 and follow the instructions for modifying catalog numbers.

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See page C104**
Replace (◆) with O/L Relay ***for each speed***	**SeepagesC105-C106**
Factory Modifications available	**SeepagesC107-C111**

❶ Dimensional information starts on page C122.

❷ For Type 3R outdoor applications, replace "D" in catalog number with an "R". Dimensions may change. For example number CAZTT7-23-✱-◆-D0 becomes CAZTT7-23-✱-◆-R0. Price remains the same.

❸ All standard multispeed starters are wired for selective control. For compelling, progressive or automatic acceleration control, see Factory Modifications.

❹ CAT9-116…CAT9-370 starters are available with "EI" option for PLC interface. Change catalog number to include "-EI". Example: CAZTT9-116-✱-◆-G0 becomes CAZTT9-116-EI-✱-◆-G0. See page C104 for price adder.

www.sprecherschuh.com/ecatalog - All pricing shown in US dollars - FY19

One Reconnectable Winding CAETT7/CAETT9 & CAEHT7/CAEHT9 ❸

Maximum Horsepower Three Phase				Open Type		Type 1 General Purpose		DIM	Type 12 [Type 3R ❷] Industrial Dusttight		DIM	Type 4 Watertight		DIM	Type 4X Watertight Corr Resist Non-metallic		DIM
200V	230V	460V	575V	Catalog No.	Price	Catalog No.	Price	❶	Catalog No.	Price	❶	Catalog No.	Price	❶	Catalog No.	Price	❶
Constant or Variable Torque - CAETT ❸																	
				CAETT		CAETT			CAETT			CAETT			CAETT		
2	2	5	7 1/2	7-9-✱-◆	710.29	7-9-✱-◆-G0	1,099.67	C	7-9-✱-◆-D0	1,124.20	0	7-9-✱-◆-W0	1,139.53	0	7-9-✱-◆-C0	1,305.09	V1
3	3	7 1/2	10	7-12-✱-◆	825.78	7-12-✱-◆-G0	1,214.14	C	7-12-✱-◆-D0	1,238.66	0	7-12-✱-◆-W0	1,256.04	0	7-12-✱-◆-C0	1,420.58	V1
5	5	10	15	7-16-✱-◆	892.21	7-16-✱-◆-G0	1,280.57	C	7-16-✱-◆-D0	1,305.09	0	7-16-✱-◆-W0	1,322.47	0	7-16-✱-◆-C0	1,487.01	V1
5	7 1/2	15	15	7-23-✱-◆	942.28	7-23-✱-◆-G0	1,322.47	C	7-23-✱-◆-D0	1,347.00	0	7-23-✱-◆-W0	1,371.52	0	7-23-✱-◆-C0	1,537.09	V1
7 1/2	10	20	25	7-30-✱-◆	1,156.90	7-30-✱-◆-G0	1,544.24	C	7-30-✱-◆-D0	1,569.79	0	7-30-✱-◆-W0	1,586.14	0	7-30-✱-◆-C0	1,751.71	V1
10	10	25	30	7-37-✱-◆	1,280.57	7-37-✱-◆-G0	1,652.57	C	7-37-✱-◆-D0	1,734.33	0	7-37-✱-◆-W0	1,751.71	0	7-37-✱-◆-C0	1,917.27	V1
10	15	30	30	7-43-✱-◆	1,487.01	7-43-✱-◆-G0	1,899.9	C	7-43-✱-◆-D0	1,982.68	0	7-43-✱-◆-W0	2,000.05	0	7-43-✱-◆-C0	2,165.62	V1
15	20	40	40	7-55-✱-◆	1,597.39	7-55-✱-◆-G0	2,010.27	C	7-55-✱-◆-D0	2,093.06	0	7-55-✱-◆-W0	2,109.41	0	7-55-✱-◆-C0	2,274.97	V1
15	20	40	50	7-60-✱-◆	1,818.14	7-60-✱-◆-G0	2,313.81	D	7-60-✱-◆-D0	2,726.70	0	7-60-✱-◆-W0	2,891.24	0	7-60-✱-◆-C0	2,726.70	W1
20	25	50	60	7-72-✱-◆	1,982.68	7-72-✱-◆-G0	2,478.35	D	7-72-✱-◆-D0	2,891.24	Q	7-72-✱-◆-W0	3,056.80	Q	7-72-✱-◆-C0	2,891.24	W1
25	30	60	60	7-85-✱-◆	2,148.24	7-85-✱-◆-G0	2,643.91	D	7-85-✱-◆-D0	3,056.80	Q	7-85-✱-◆-W0	3,222.37	Q	7-85-✱-◆-C0	3,056.80	W1
30	30	75	75	7-97-✱-◆	2,266.80	7-97-✱-◆-G0	2,762.47	D	7-97-✱-◆-D0	3,175.35	Q	7-97-✱-◆-W0	3,340.92	Q	7-97-✱-◆-C0	3,175.35	W1
30	40	75	100	9-116-✱-◆ ❹	4,266.85	9-116-✱-◆-G0 ❹	5,973.59	G	9-116-✱-◆-D0 ❹	6,399.76	T	9-116-✱-◆-W0 ❹	6,869.88	T	9-116-✱-◆-C0 ❹	8,363.03	A2
40	50	100	125	9-146-✱-◆ ❹	4,949.55	9-146-✱-◆-G0 ❹	6,929.16	G	9-146-✱-◆-D0 ❹	7,423.81	T	9-146-✱-◆-W0 ❹	7,969.56	T	9-146-✱-◆-C0 ❹	9,700.82	A2
Constant Horsepower - CAEHT ❸																	
				CAEHT		CAEHT			CAEHT			CAEHT			CAEHT		
1 1/2	1 1/2	3	5	7-9-✱-◆	710.29	7-9-✱-◆-G0	1,099.67	C	7-9-✱-◆-D0	1,124.20	0	7-9-✱-◆-W0	1,139.53	0	7-9-✱-◆-C0	1,305.09	V1
2	2	5	7 1/2	7-12-✱-◆	825.78	7-12-✱-◆-G0	1,214.14	C	7-12-✱-◆-D0	1,238.66	0	7-12-✱-◆-W0	1,256.04	0	7-12-✱-◆-C0	1,420.58	V1
3	3	7 1/2	10	7-16-✱-◆	892.21	7-16-✱-◆-G0	1,280.57	C	7-16-✱-◆-D0	1,305.09	0	7-16-✱-◆-W0	1,322.47	0	7-16-✱-◆-C0	1,487.01	V1
3	5	10	10	7-23-✱-◆	942.28	7-23-✱-◆-G0	1,322.47	C	7-23-✱-◆-D0	1,347.00	0	7-23-✱-◆-W0	1,371.52	0	7-23-✱-◆-C0	1,537.09	V1
5	7 1/2	15	20	7-30-✱-◆	1,156.90	7-30-✱-◆-G0	1,544.24	C	7-30-✱-◆-D0	1,569.79	0	7-30-✱-◆-W0	1,586.14	0	7-30-✱-◆-C0	1,751.71	V1
7 1/2	7 1/2	20	25	7-37-✱-◆	1,280.57	7-37-✱-◆-G0	1,652.57	C	7-37-✱-◆-D0	1,734.33	0	7-37-✱-◆-W0	1,751.71	0	7-37-✱-◆-C0	1,917.27	V1
7 1/2	10	25	25	7-43-✱-◆	1,487.01	7-43-✱-◆-G0	1,899.90	C	7-43-✱-◆-D0	1,982.68	0	7-43-✱-◆-W0	2,000.05	0	7-43-✱-◆-C0	2,165.62	V1
10	15	30	30	7-55-✱-◆	1,597.39	7-55-✱-◆-G0	2,010.27	C	7-55-✱-◆-D0	2,093.06	0	7-55-✱-◆-W0	2,109.41	0	7-55-✱-◆-C0	2,274.97	V1
10	15	30	40	7-60-✱-◆	1,818.14	7-60-✱-◆-G0	2,313.81	D	7-60-✱-◆-D0	2,726.7	0	7-60-✱-◆-W0	2,891.24	0	7-60-✱-◆-C0	2,726.70	W1
15	20	40	50	7-72-✱-◆	1,982.68	7-72-✱-◆-G0	2,478.35	D	7-72-✱-◆-D0	2,891.24	Q	7-72-✱-◆-W0	3,056.80	Q	7-72-✱-◆-C0	2,891.24	W1
20	25	50	50	7-85-✱-◆	2,148.24	7-85-✱-◆-G0	2,643.91	D	7-85-✱-◆-D0	3,056.80	Q	7-85-✱-◆-W0	3,222.37	Q	7-85-✱-◆-C0	3,056.80	W1
25	25	60	60	7-97-✱-◆	2,266.80	7-97-✱-◆-G0	2,762.47	D	7-97-✱-◆-D0	3,175.35	Q	7-97-✱-◆-W0	3,340.92	Q	7-97-✱-◆-C0	3,175.35	W1
~	30	60	75	9-116-✱-◆ ❹	4,266.85	9-116-✱-◆-G0 ❹	5,973.59	G	9-116-✱-◆-D0 ❹	6,399.76	T	9-116-✱-◆-W0 ❹	6,869.88	T	9-116-✱-◆-C0 ❹	8,363.03	A2
30	40	75	100	9-146-✱-◆ ❹	4,949.55	9-146-✱-◆-G0 ❹	6,929.16	G	9-146-✱-◆-D0 ❹	7,423.81	T	9-146-✱-◆-W0 ❹	7,969.56	T	9-146-✱-◆-C0 ❹	9,700.82	A2

Larger sizes available. Contact your Sprecher + Schuh representative.

NOTE: Catalog numbers and enclosure dimensions reflect contactors with AC coils. For DC coils, select Coil Code from the DC Coil Code table on page C104 and follow the instructions for modifying catalog numbers.

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See page C104**
Replace (◆) with O/L Relay	**SeepagesC105-C106**
Factory Modifications available	**SeepagesC107-C111**

❶ Dimensional information starts on page C122.

❷ For Type 3R outdoor applications, replace "D" in catalog number with an "R". Dimensions may change. For example number CAETT7-23-✱-◆-D0 becomes CAETT7-23-✱-◆-R0. Price remains the same.

❸ All standard multispeed starters are wired for selective control. For compelling, progressive or automatic acceleration control, see Factory Modifications.

❹ CAT9-116…CAT9-370 starters are available with "EI" option for PLC interface. Change catalog number to include "-EI". Example: CAEHT9-116-✱-◆-G0 becomes CAEHT9-116-EI-✱-◆-G0. See page C104 for price adder.

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Combination Multi-Speed Starter Options Chart ❶

Circuit Breaker or Disconnect Switch	Enclosure Type	Price *(Add to base multi-speed starter list price)*				
		7-9 7-12 7-16	7-23 7-30	7-37 7-43 7-55	7-60 7-72 7-85 7-97	9-116 (-EI) 9-146 (-EI)
Thermal Magnetic Circuit Breaker	Type 1	**965.79**	**965.79**	**1177.34**	**1280.57**	**2341.40**
	Type 4/4X	**1376.63**	**1376.63**	**1698.56**	**2348.56**	**3410.41**
	Type 12	**979.03**	**979.08**	**1232.53**	**1376.63**	**3163.09**
Non Fusible Disconnect	Type 1	**643.86**	**643.86**	**821.69**	**1040.40**	**2160.51**
	Type 4/4X	**1054.70**	**1054.70**	**1341.89**	**2109.41**	**2561.13**
	Type 12	**657.15**	**657.15**	**876.88**	**1136.46**	**2314.83**
Fusible Disconnect - 30 Amp	Type 1	**753.21**	**753.21**	**~**	**~**	**~**
	Type 4/4X	**1164.06**	**1164.06**	**~**	**~**	**~**
	Type 12	**766.50**	**766.50**	**~**	**~**	**~**
Fusible Disconnect - 60 Amp	Type 1	**~**	**~**	**876.88**	**~**	**~**
	Type 4/4X	**~**	**~**	**1397.07**	**~**	**~**
	Type 12	**~**	**~**	**931.04**	**~**	**~**
Fusible Disconnect - 100 Amp	Type 1	**~**	**~**	**~**	**1123.18**	**~**
	Type 4/4X	**~**	**~**	**~**	**2191.17**	**~**
	Type 12	**~**	**~**	**~**	**1219.25**	**~**
Fusible Disconnect - 200 Amp	Type 1	**~**	**~**	**~**	**1397.07**	**1739.44**
	Type 4/4X	**~**	**~**	**~**	**2465.06**	**2807.43**
	Type 12	**~**	**~**	**~**	**1493.14**	**2561.13**

❶ Refer to pages C4-C5 for information on modifying standard multispeed catalog number to combination type or contact Sprecher + Schuh Technical Support.

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