

#116 • \$3.00
Useful Tips &
Information Inside



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Superior quality starts here...

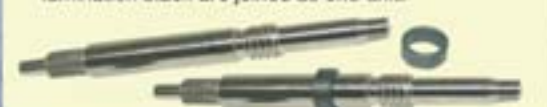
1-800-722-2720 • 850-455-5476



The Starting & Charging Specialists

1 It all starts coming together here. An automated line dispenses epoxy glue on the inside of the shell; high performance magnets are bonded through an induction heating procedure. Buffer pads are then added.

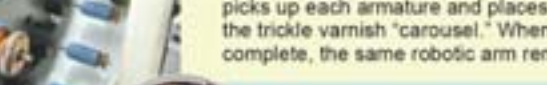
2 At this induction heating station the corrosion resistant nickel-plated armature shaft, ring and silicon steel lamination stack are joined as one unit.



3 Next stop is the powder coater. The best insulation and corrosion preventative available.



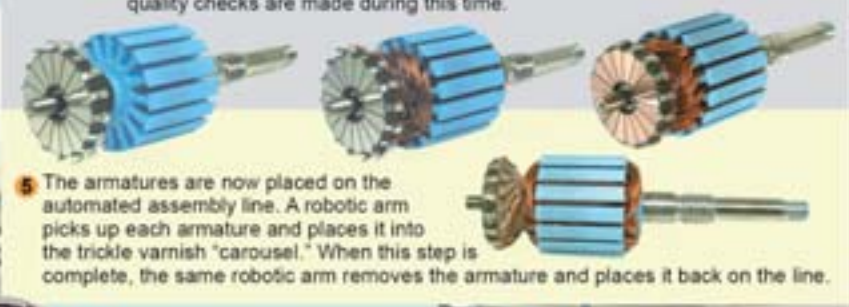
4 A number of steps are completed within this station. Here, the commutator is attached, a computerized armature winder adds the copper wire, and commutator clamps are crimped and silver welded. Next, the armature will go into a lathe where the commutator will be polished. Two computerized quality checks are made during this time.



5 The armatures are now placed on the automated assembly line. A robotic arm picks up each armature and places it into the trickle varnish "carousel." When this step is complete, the same robotic arm removes the armature and places it back on the line.

6 Add the brush kit, nuts, bolts, spring, end cap and drive gear. Assembly of the starter is almost complete at this phase of the line.

7 The final of many tests! Each and every starter must pass multi-level, maximum load test before being boxed. Quality assured all the way!



An ARCO Warranty Protects You From Defects in MATERIALS OR WORKMANSHIP... The Warranty **DOES NOT** cover such things as:



FREIGHT DAMAGE

ARCO part boxes are not shipping boxes.

If you are shipping a part to a customer or sending a warranty return, the part must be packaged in a way to prevent possible damage. Place extra packing material around the part, place it back in the part box and then into a well packed, sturdy shipping container.

To prevent damage, properly pack all parts before reshipment.



BROKEN SOLENOIDS

The solenoid was not broken when the starter was packaged to be shipped. We have special boxes made for the starters, and we use special packing materials to ensure the item will arrive to the customer safely. Sometimes, though, the packages are mishandled by the carrier (i.e., dropped or thrown) and the solenoid becomes damaged. This is the carrier's responsibility. It is not a material defect; therefore it is **not covered by warranty.**



RUST, CORROSION, SUBMERSIONS OR BURNOUTS

ARCO treats every component with a special rust and corrosion resistant coating to prevent water damage. However, it is impossible to protect the unit from direct contact with water. Therefore, a failure directly caused by rust, corrosion or submersion is **not covered by warranty.** Starter burnouts are caused by the starter running for extended periods of time without a cool down period causing the windings to overheat. This could be caused by a defective ignition switch, water in the ignition switch, defective starter relay or cranking for long periods of time without allowing the starter to cool down. Burnouts **are not covered by warranty.**

BROKEN MOUNTING FLANGES OR SHAFTS

A broken flange is typically caused by improper installation. The mounting holes may look evenly spaced in a triangular pattern, but they are not—one hole is slightly offset. Forcing a mounting bolt into the offset hole may cause the flange to break. This may also occur if the mounting bolts are not tightened evenly. A broken shaft is caused by a malfunction in the gearbox. These breaks are not material defects, and they are **not covered by warranty.**



CUT WIRES OR DISMANTLED UNITS

Cutting a unit's wires or dismantling a unit immediately voids the manufacturer's warranty. In addition, taking a motor off the reservoir and trying to install it on an old reservoir usually damages the brushes and seals in the motor. Disassembled parts are **not covered by warranty.**

BROKEN NOSE HOUSINGS, DRIVE GEARS OR INTERNAL GEARS

This type of failure is always blamed on a bad casting, defective drive gear or internal gears. In fact, it is caused when a starter, spinning at a high rate of rpm, comes to an abrupt stop. This can occur when an engine backfires or momentarily releasing the start switch and re-engaging the starter before it has spun down. It may also happen when a cylinder suffers a water hydraulic lock. In either case, the damage is not due to a defective part, and is **not covered by warranty.**





CHRIS CRAFT

16.60-00031	VR407
16.61-00026	40115
16.61-00042	50142
16.61-00043	50141
16.61-00044	50160
16.61-00045	50161
16.61-00048	50141
16.61-00050	50160
16.61-00051	50161
16.61-00053	VR406

CHRYSLER

177917	SW774
2095509	50110
2098300	VR405
2847527	VR405
2855927	50110
2875927	50110
2875928	50109
3527501	40112
3527502	40112
449541-1	6216
455541	6216
460917-1	SW295
480955	5393
490955	5393
575955	5382
F6169551	5393

CRUSADER

22611	SW295
39049	60104
39064	60104
39200	60075
42016	SW975
42090	30456
42091	30457
42150	30457
9006320	SW774
RU0050	SW456
RU0050A	SW463
RU0050B	SW463
R130014	SW295

DELCO

8400027	20822
8600514	20850
8600515	20840
8000500	5400
9000735	30470 & MBK450
9000762	30470 & MBK450
9000763	30460
9000768	30470 & MBK450
9000789	30470 & MBK450
9000819	30470 & MBK450
9000820	30460
9000821	30470 & MBK450

DELCO

9000822	30460
9000839	30470 & MBK450
9000840	30470 & MBK450
9000849	30470 & MBK450
9000884 S/P	30433
9000884 H/P	30470 & MBK450
9000885	30470 & MBK450
9000887	30462
9000888	30459
9000940	30470 & MBK450
9000974	5400
19010612	30457
19010615	30457
19010617	30456
19020600	20810
19020601	20800
19020604	20810
19020606	20820
19020608	20825
19020609	20800
19020611	20815
19020612	20815
19020616	20830
19020617	20821
19020618	20860
19020703	20840
19020704	20850
19020706	20840
19020707	20850

FORCE

811902	DV394
819222	DV393
819479A1	6276
819480A1	6276
820595	SR394
50-819085	5393
50-819968-1	7325
50-820193	5394
50-F616955-1	5393
827675A1	6255
87-F660917	R040
89-F460917-1	SW295
F15189	SR393
F15190	BK900
F177917	SW774
F575955	5382
F616955	5393

HITACHI

S106-07B	3421
S106-07E	3421
S106-07F	3421
S106-12B	3421
S108-80	3420
S108-80A	3420
S108-80B	3420
S108-87A	3423
S108-94	3412
S108-94A	3412
S108-94B	3412
S108-94C	3412

HITACHI

S108-97	3422
S108-97A	3422
S108-99B	3425
S108-112	3412
S108-120	3412
S114-221	3424
S114-221E	3424
S114-221F	3424
S114-221G	3424
S114-221H	3424
S114-221J	3424
S114-263B	3427
S114-303	98180
S114-303A	98180
S114-323	3426
S114-323A	3426
S114-323B	3426
S114-323C	3426
S114-407	3440
S114-415	3410
S114-415A	3410
S114-437	3444
S114-483	98185
S114-551	3442
S114-551A	3442
S114-552	3428
S114-552A	3428
S114-555	3440
S114-559B	3429
S114-561	3446
S114-571	3410
S114-571A	3410
S114-660	3428
S114-660A	3428
S114-660B	3428
S114-667	3410
S114-673	3444
S114-674	3442
S114-677	3446
S114-815	98185
S114-817A	98185
S114-828B	3430
S114-836A	3431
S114-838A	3432
S114-867	3433
S114-867A	3433

HONDA

31200-ZV5-0130	3446
31200-ZV5-003	3446
31200-ZV6A-0130	3446
31200-ZW5-003	3447
36120-ZV5-821	6239
36120-ZW4-H12	6237
36120-ZY3-013	6234
36120-ZY6-013	6235
36120-ZY9-003	6236

KAWASAKI

13101-3701	DV750
13101-3703	DV750
13101-3705	DV750
13101-3706	DV750
59051-3005	DV440
59051-5007	DV440

MARINE PWR

471200	20830
471201	20830
4711210	20830
1210-000	60050
0170-000	30459
0171-000	30457
0172-000	30460
0174-000	30470 & MBK450

MARINER

50-97072M	3424
50-97072T	3424
50-97693M	3420
50-804312T1	3430

MERCURY

12449	60050
13037	SW975
13310	DV380
13310-1	DV380
13310T1	DV380
14336A6	6275
14336A8	6275
14336A9	6275
14336A15	6275
14336A17	6275
14336A20	6275
15382	SW975
15386	SR380
15386001	SR380
17631	TR218
17631A1	TR218
17649	6218
17649A1	6218
17649A02	6218
17649T	6218
18525A1	M525
25661	SW661
25661-1	SW661
25661T1	SW661
25942	5374-6
32082	SW082
32701	20102
33261	SW975
43076	DV385
43076T	DV385
47456A1	20102
47886	SW622
47886T	SW622
514995	5551
54981	SW981
54293A5	SW925
54293A10	SW926
54293A11	SW925
54293A13	SW926
56045	20102
57380	DV366
59755	20102
62351A1	AR351
62351A2	AR351
63292	BK900
65057	SW981
65057A1	SW981





PART NUMBER QUICK REFERENCE

MERCURY	ARCO	MERCURY	ARCO	MERCURY	ARCO	MERCURY	ARCO
65057T1	SW981	825096T01	SW945	50-32703	30460	50-79823A1	30460
68571-1	DV362	827675A1	6255	50-37274A4	5374	50-8M0033984	5367
68575	DV377	828151	R151	50-37345A1	5366	50-8M6001043	5400
68575-3	DV396	828151A1	R151	50-38890A1	5366	50-8M8021116	30470
68575T2	DV365	828506	20850	50-41583	5385	50-803835T02	3421
69729	20102	828708	6250	50-41583T	5385	50-803900T	5551
75383	SR379	828708A1	6279	50-44369A1	5388	50-803903T	5382
75384	BK900	828708T	6250	50-44415	5380	50-804312T1	3430
75384-1	BK900	850402	DV457	50-45120	30460	50-805991	12213
75661	DV380	86177-1	DV381	50-45822	5374	50-806963A2	30460
78403A1	60050	862030T	20810	50-46282	30460	50-806963A4	30460
78403A2	60050	862030T01	20810	50-47454	30456	50-806964A2	30470 & MBK450
78477	20104	862031T	20800	50-47455	30457	50-806964A3	30470 & MBK450
79215	SR380	862031T1	20800	50-48643A1	5374	50-806964A4	30470 & MBK450
8M0007971	3432	863077T	20815	50-514955	5551	50-806965A2	30460
8M0031551	6250	865202T	R202	50-55601A2	5366	50-806965A4	30460
8M0058226	AR351	865380A13	6275	50-56886	70200	50-807904A1	30433
8M0064020	20850	875285T1	20840	50-57465A1	5377	50-808011A1	30457
8M6000803	20850	875286A-1	20850	50-575955	5382	50-808011A4	30459
8M6000804	20840	87828	6218	50-57867A1	5374	50-808011A05	30459
8000500	5400	878265A1	6250	50-58059	90105	50-812428A3	30470 & MBK450
802587	DV393	878265A4	6250	50-58788	5374	50-812429A2	30460
802587T	DV393	881247A1	20850	50-58788A3	5374	50-812604A2	30470 & MBK450
802587T01	DV393	881248T	20840	50-59799	30460	50-81490M	3424
802639	DV380	88183A5	6275	50-60315	5375	50-818445-2	5395
802639T	DV380	88183A6	6275	50-60594A1	5384	50-818445-3	5395
802640	DV325	88183A6	6275	50-60594T01	5384	50-818445-5	5395
802640T	DV325	88183A11	6275	50-64975	5378X	50-819085	5393
802665T	DV394	88183A12	6275	50-65436	5375	50-819085-1	5393
803822T	SW774	882751A1	R151	50-65784A1	30457	50-819085T1	5393
805447T	60065	882751A04	R751	50-65785A1	30456	50-819271	5397
805884T	60065	883166A2	M532	50-66015	5375	50-819968-1	7325
807057	R202	889274	SW925	50-66015-1	5392	50-819968-2	7325
807057T	R202	889955	20840	50-66015-2	5375	50-819968-3	7325
807652T	60055	889955T01	20840	50-66015-3	5392	50-819968-4	7325
807653T	60060	889956	20850	50-66015-T	5392	50-819968T4	7325
809155	M874	891736T	6218	50-66015T1	5375	50-820193	5394
809162	M875	891754T	DV365	50-67341	5374	50-820193-1	5394
809463	SW463	892940T	20860	50-69863A1	30460	50-820193A1	5397
809463-1	SW463	892940T01	20860	50-69864A1	30460	50-820193T1	5394
809463A1	SW463	892940T02	20860	50-69865	50169	50-820193003	5394
809885A1	6276	893907A02	6276	50-69865A1	50169	50-822330A2	30470 & MBK450
809885A2	6276	898265015	DV381	50-72467	5377	50-822462	5396
809885T2	6276	898265016	BK900	50-72550	50143	50-822462-1	5396
811628	6279	89902	SW975	50-72550A1	50143	50-822462T1	5396
811674	6276	92459A3	6270	50-72550A2	50143	50-825095	3426
811874	M874	92459A4	6270	50-73521	5379	50-830308	5364
811874T	M874	92459A8	6270	50-73521T	5379	50-830308T	5364
811875	M875	92497A3	60050	50-76965A1	30457	50-832997	7326
811875T	M875	96562	DV367	50-76965A3	30457	50-832997-1	7326
811883	M883	96564T	SR367	50-76965A4	30457	50-832997-2	7326
811883T	M883	98555	60050	50-77141	5380	50-832997003	7326
811888	M888	98555A1	60050	50-77328A1	30460	50-833153	5381
811902	DV394	50-F514955	5551	50-77328A3	30460	50-833153-1	5381
813447	6276	50-F575955	5382	50-79472	5380	50-833153-2	5381
816770	AR351	50-12121A2	30470 & MBK450	50-79472-1	5380	50-833153-3	5381
816770T	AR351	50-12177A2	30470 & MBK450	50-79472T	5380	50-833153-5	5381
817119A1	60050	50-12872	50169	50-79604A1	30456	50-834749	5362
817119A4	60050	50-17251A3	30457	50-79604A2	30456	50-84917M	3420
819222	DV393	50-29105	5374X	50-79604A3	30456	50-852570T	5359
819222A1	DV393	50-30829	5366	50-79821A2	30460	50-853329T	5400
820583	DV325	50-30842	5374X	50-79822A1	30460	50-853869	5393
820586	SR325	50-30955	5374 W/ DV370	50-79822A2	30460		
820586T	SR325	50-31976	5374				
821509	R509	50-32403	5374-6				
823653A5	6270	50-32411	5374X				
823653A9	6270						





PART NUMBER QUICK REFERENCE

B.R.P - O.M.C.

586276	5369
586277	5398
586278	5376
586279	5389
586280	5371
586281	5370
586283	5372
586284	5399
586285	5386
586286	5363
586287	5363
586288	5373
586289	5387
586392	DV387
586411	5387
586730	SW730
586731	5387
586767	R767
586768	5358
586774	SW590
586842	SW394
586890	5387
586897	5387
586957	5387
587020	SW595
587045	5358
587078	5357
587291	5357
763454	5369
778991	5390
778992	5373
778993	5371
778994	5386
778995	5361
778996	5398
979768	6211
979774	SW774
979937	6211
980801	SW394
981074	30460
981078	30160
981186	40152
981187	40152
981410	SW268
981638	6211
981703	SW394
981821	70200
982058	6204
982069	6211
982073	6211
982107	30460
982121	30460
982151	TR211
982187	SW268
982189	SW394
982200	30460
982311	TR204
982364	20104
982706	6204
983019	6220
983248	30460
983195	6214
983318	6211
983424	60125
983444	30460
983446	6220

B.R.P - O.M.C.

983790	30460
984356	6206
984456	30470 & MBK450
984536	70212
984565	60125
984628	70216
985063	SW268
985064	SW730
985237	6220
985465	60125
985466	60125
985799	SW984
985964	40152
985966	30460
986008	60125
986280	6245
986505	30470 & MBK450
987774	60070
987811	70125
987883	SW125
987969	70200
988012	70125
988013	70212
988217	30460
988247	60125
0586767	R767
3850216	SW463
3850525	30470 & MBK450
3850526	30460
3853839	SW394
3853853	60125
3853869	SW984
3853945	6245
3853982	30470 & MBK450
3853998	SW984
3854182	60125
3854190	70125
3854194	SW125
3854750	30460
3854751	30470 & MBK450
3854809	60125
3855177	30470 & MBK450
3855882	30460
3856600	60070
3857298	60125
3857533	R473
3857561	60070
3857747	30470 & MBK450
3858463	30460
3860566	30470 & MBK450
3860769	60125
5004518	JSA518
5005254	6238
5005374	6241
5005376	6241
5005831	6248
5006319	6247
5009214	SW590
5036732	6240

PLSRCRAFT

R13001	SW394
R130013	SW125
R130014	SW295
R200000	70201
RA097002	40147
RA097006	60108
RA097006A	60108
RA097007	20815
RA097007A	20821
RA097007B	20825
RA097007C	20822
RA097009	20826
RA122001	70200
RA122002	70201
RA122004	70108
RA122008	30456
RA122009	30459
RA122014	70125
RA122015	30433
RA122016	30460
RA122019	30462
RU0050	SW456
RU0050A	SW463
RU0050B	SW463

POLARIS

3240120	DV744
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SEA DOO

29550089	DV650
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SIERRA

18-5600	5373
18-5601	5366
18-5602	5374
18-5603	30459
18-5604	5375
18-5605	5379
18-5606	5388
18-5608	5380
18-5609	5381X
18-5610	5392
18-5611	5367
18-5612	5363
18-5613	5393
18-5614	5397
18-5617	5361
18-5618	7325
18-5619	5387
18-5620	5395
18-5621	5396
18-5622	5394
18-5623	5368
18-5624	5389
18-5626	5370
18-5627	5390
18-5628	5386
18-5629	5376
18-5630	5371

SIERRA

18-5631	5398
18-5632	5399
18-5634	5372
18-5635	5370
18-5636	5377
18-5639	5367
18-5640	5373
18-5641	5366
18-5642	5375
18-5643	5380
18-5644	5393
18-5645	5376
18-5646	5371
18-5647	5372
18-5648	5370
18-5649	5377
18-5650	DV366
18-5651	DV385
18-5655	DV376
18-5656	DV377
18-5658	DV381
18-5659	DV325
18-5671	DV390
18-5673	DV393
18-5674	DV380
18-5675	DV387
18-5677	DV394
18-5678	DV389
18-5679	DVK72
18-5680	DVK76
18-5682	DV396
18-5697	BK900
18-5700	R809
18-5702	R952
18-5704	R832
18-5705	R473
18-5707	AR351
18-5708	AR103
18-5709	AR104
18-5710	VR405
18-5711	VR404
18-5712	VR407
18-5714	VR095
18-5727	VR406
18-5728	VR405
18-5729	R211
18-5800	R012
18-5801	SW394
18-5802	SW981
18-5803	SW774
18-5804	SW975
18-5807	SW081
18-5808	SW622
18-5811	SW463
18-5812	SW268
18-5813	SW268
18-5814	SW340
18-5815	SW275
18-5816	SW054
18-5817	SW058
18-5818	SW064
18-5819	SW097
18-5820	SW099
18-5821	SW945



PART NUMBER QUICK REFERENCE



SIERRA	ARCO	SIERRA	ARCO	SIERRA	ARCO	SIERRA	ARCO
18-5822	SW926	18-6260	60125	18-6452	20826	18-6864	5397
18-5823	SW580	18-6261	60070	18-6453	20822	18-6925	84135
18-5833	SW590	18-6262	60122	18-6454	20840	18-6932	98185
18-5834	SW109	18-6263	60108	18-6455	20850	18-6937	98180
18-5835	SW295	18-6264	R036	18-6754	6209	18-6943	5359
18-5836	SW661	18-6265	60071	18-6755	6204	18-6946	30470
18-5837	SW984	18-6266	R040	18-6756	6228	18-6947	12213
18-5838	SW975	18-6267	R211	18-6758	6223	18-6952	60150
18-5841	SW774	18-6268	R177	18-6759	6220	18-6955	60170
18-5842	SW412	18-6269	SW340	18-6760	6265	18-18409	6259
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18-5882	60073	18-6271	R670	18-6762	6216	18-56002	SR446
18-5900	30460	18-6273-1	6278	18-6763	6217	18-56003	SR420
18-5901	30456	18-6274	6224	18-6764	6211	18-56004	SR424
18-5902	30457	18-6275	30433	18-6765	6270	18-56005	SR426
18-5903	70200	18-6276	70212	18-6767	6208	18-56006	SR428
18-5904	70201	18-6277	6244	18-6767-1	6208	18-56007	SR429
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18-5910	30470 & MBK450	18-6283	5381	18-6772	6218	SUZUKI	ARCO
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18-5982	60160	18-6843	60075	18-6843	60075	UNIVERSAL	ARCO
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18-5984	20820	18-6847	60076	18-6847	60076	277584	40145
18-6250	SR102	18-6848	60074	18-6848	60074	288182	60108
18-6251	SR104	18-6851	BI-1203	18-6851	BI-1203	288759	60108
18-6252	TR208	18-6852	BI-1602	18-6852	BI-1602		
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STATE-OF-THE-ART, COMPUTERIZED TESTING EQUIPMENT



Armature Tester

DID YOU KNOW...

You have a better chance at winning a lottery than you have of receiving an ARCO unit that doesn't perform!

EVERY ARCO unit is load tested with state-of-the-art testing equipment.



Permanent Magnet Motor Load Tester



Wire Wound Motor Load Tester

We have invested over a million dollars in fully automated computerized testing equipment for our inboard starters, outboard starters and tilt/trim motors. Each and every unit is tested for performance beyond its normal operating condition. The testers pictured above are specifically designed for testing inboard and outboard starters and are just three of five different testers we have in use today. We also have one designed for testing tilt/trim motors and another for testing hydraulic pump assemblies.

Most manufacturers only perform spot tests or a free run only test. It is impossible to know that every unit is performing to specification without performing an extensive load test on every unit. It is very expensive to test each and every unit, however, our goal is to supply you with the highest quality unit possible at a reasonable price.

After completion of a thorough test procedure, detailed test results are displayed. The tests are so complete that even the resistance of the solenoid contacts are shown on the report. Armature ripple is also shown along with a performance curve. If a unit fails to perform to specification it is rejected and is sent to our quality assurance department for inspection.

**We call this
VALUE!**





The next time you install an ARCO part you can have confidence that the part will perform to O.E.M. specifications.

IMPORTANT BATTERY FACTS

A good battery can provide four or five years of worry-free service with the right kind of care.

Bigger is better! The battery you are replacing does not have to be the same size as the original. **IT IS ALWAYS BETTER TO HAVE EXTRA BATTERY CAPACITY.**

POINTS TO REMEMBER

-  **The battery is the heart of the electrical system**
-  **Always start troubleshooting at the battery**
-  **Never store a battery in a discharged state**
-  **Never add anything except distilled water to a battery**



DRY CHARGED BATTERIES MUST BE CHARGED BEFORE USING



Many small batteries are supplied with the electrolyte in a separate container. If you have to fill a new battery with electrolyte, **YOU MUST PLACE THE BATTERY ON A QUICK CHARGER.** The charging system will never bring the battery to a fully charged state. **THE BATTERY CAPACITY WILL NEVER BE ABOVE 80%.** Pulling the battery out later and trying to charge it will not work. **THE BATTERY'S CAPACITY HAS BEEN PERMANENTLY CUT BY 20% AND THERE IS NOTHING YOU CAN DO ABOUT IT.**

BATTERIES WILL SELF DISCHARGE WHEN STORED

Batteries will self discharge when stored for long periods of time. This is a normal process with all lead acid batteries. **Always charge the battery to full charge before storing.** Also disconnect the negative battery cable. This will keep the small system drains from accelerating the discharge process. The best way to avoid shortened battery life is **use a SMART CHARGER (not a trickle charger)** on the battery when it's not being used. A smart charger is a charging device that will maintain the battery at a full state of charge by only charging the battery when the voltage drops to a specified level without overcharging.



ELECTROLYTE BECOMES WATER IN A DISCHARGED BATTERY



As a battery becomes discharged the percentage of sulfuric acid in the electrolyte becomes less. The sulfuric acid combines with the lead plates producing lead sulfate. As this happens **the electrolyte solution becomes pure water.** A discharged battery will freeze in cold climates, which will destroy the insulators and plates inside it.

LOOSE BATTERY TERMINAL ENDS CAN DESTROY A BATTERY

Loose or corroded battery cable lugs can cause all sorts of problems. When the starter is engaged the loose or corroded connection can cause a heavy arc which will melt the post right out of the battery. If the battery is gassing, the arc can cause the battery to explode. Never use the temporary type battery ends. These are only good for emergency use and will become corroded in a short period of time. **Always use a crimped and sealed battery cable end or replace the battery cable.**



Make sure there is a gap between the ends of the terminal when tight.

BATTERY TESTING PROCEDURES

WARNING! Batteries give off hydrogen gas constantly. Hydrogen gas is highly explosive. Always wear safety glasses or goggles and use caution when working with batteries.

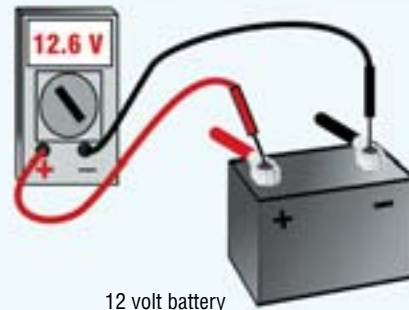
OPEN CIRCUIT VOLTAGE TEST

Before you can properly test any battery it must be at **FULL CHARGE**.

You can verify the state of charge with the use of a **digital multimeter**.

Connect the digital multimeter to the battery terminals. A fully charged 12 volt battery will read at least 12.6 volts (2.1 volts per cell) on the multimeter. **If your reading is 12.4 OR BELOW you must recharge the battery before testing.**

Open Circuit Volts	Percent of Charge
11.7 volts or less	0%
12.0	25%
12.2	50%
12.4	75%
12.6 or more	100%



12 volt battery

LOAD TESTING THE BATTERY

Before you can properly test any battery it must be at **FULL CHARGE**.

The only way you can thoroughly test a battery is to place a high amperage load across the battery terminals.

Starter motors have very high amperage requirements which can exceed 300 amps on certain engine applications. If the battery has to be recharged you must first remove the surface charge. This can be done by using the starter. Disable the ignition spark (consult manufacturer's method to avoid electronic ignition) and crank the engine for 10-15 seconds. Once you have removed the surface charge, disconnect the battery cables and connect the battery load tester to the battery posts.

Determine the cold cranking amperage rating of the battery you are testing.
If the cold cranking amp rating (CCA) is not known, use 450 CCA for four cylinder engines, 550 CCA for six cylinder engines and 650 CCA for V-8 engines.

Adjust current draw on the load tester to 50% of the CCA rating. Continue this for 15 seconds while viewing the voltage reading on the battery tester. The voltage should stay above the specified reading (see chart below) without falling off. If the voltage remains at the specified level or above, the battery would be considered good. If the voltage reading drops below the specified level, replace the battery.

Load Test Chart		
Minimum Voltage	Temperature (degrees)	
9.6	70 F	21C and above
9.5	60F	16C
9.4	50F	10C
9.3	40F	-1C
9.1	30F	-7C
8.9	20F	-12C
8.7	10F	-18C
8.5	0F	-18C

Tech Tip

Rust, Corrosion or Submersions are NOT COVERED BY WARRANTY

The best offense is a great defense

Moisture is the number one “killer” of marine starters. That is why, from start to finish, we design and manufacture our starters with corrosion protection in mind. In fact, over three million dollars has been invested in totally computerized production and testing machinery. Follow along as we show you how we not only go to war against corrosion, but build quality into each and every **ARCO** part.

First, we start with nickel-plated armature shafts and silicon steel lamination stacks. Add a layer of powder coating, the best insulation and corrosion preventative available, and you are ahead in the battle.

Next, the commutator is attached, computer-wound copper windings are added, and a ground fault test is made on each armature. Strategic testing during the early stages of assembly is an essential maneuver for uncovering and correcting potential weaknesses. The commutator tabs are then crimped and hot stacked. On the lathe, the commutator face is smoothed and polished ensuring the brushes run as friction-free as possible. A computerized 18 point armature check is made at this time.

Now the armature goes onto our automated, state-of-the-art assembly line. The first stop is the polyester trickle varnish “carousel”. The varnish not only assists in holding the windings in place during peak performance, but also dissipates heat—another of the starter’s enemies. Moving along, the armatures are now inserted into the epoxy coated shell. The shells have been previously prepared with high performance magnets bonded to the interior. Nuts, bolts, gaskets, a spring, drive gear, brush kit and end cap are added to complete the assembly of the starter. The high performance magnets are now fully charged. Last, but not least, a computerized full load performance test is conducted on each and every starter. Only by passing this final inspection is an **ARCO** starter certified as ready for battle.



REPLACEMENT OUTBOARD STARTERS



3410 (NEW)

FITS: TOHATSU 45-140 HP, **2 Stroke**

Replaces: Hitachi S114-415A,
S114-415, S114-571A,
S114-667

9-tooth drive gear



DV510*

9-tooth drive gear



SR410*

Brush holder assembly



***Will Fit These Starters Only:**

ARCO 3410, Hitachi S114-667, Tohatsu FM 5900

3412 (NEW)

FITS: SUZUKI, TOHATSU, NISSAN 30-40 HP, **2 Stroke**

Replaces: Hitachi S108-94,
S108-112, S108-120

9-tooth drive gear



DV512*

9-tooth drive gear



SR412*

Brush holder assembly



***Will Fit These Starters Only:**

ARCO 3412, Hitachi S108-120, Tohatsu 3C8-76010-100

3420 (NEW)

FITS: YAMAHA 25-40 HP, **2 Stroke**

MARINER 20-40 HP, **2 Stroke**

Replaces: Hitachi S108-80,
S108-80A, S108-80B

11-tooth drive gear



DV520*

11-tooth drive gear



SR420*

Brush holder assembly



***Will Fit These Starters Only:**

ARCO 3420, Hitachi S108-80B, Yamaha 689-81800-13

3421 (NEW)

FITS: YAMAHA

1984-1997 9.9-15 HP

1988-1998 25 HP

Replaces: Hitachi S106-07B,
S106-07E, S106-07F

10-tooth drive gear



3422 (NEW)

FITS: YAMAHA

1984-UP 70 HP

1991-UP 60 HP, **2 Stroke**

Replaces: Hitachi S108-97A

9-tooth drive gear



DV522*

9-tooth drive gear



SR422*

Brush holder assembly



***Will Fit These Starters Only:**

ARCO 3422, Hitachi S108-97A, Yamaha 6H3-81800-11

3423 (NEW)

FITS: YAMAHA

1987-Up 30 HP

1989-Up 40-50 HP

Replaces: Hitachi S108-87A

11-tooth drive gear



DV523*

11-tooth drive gear



SR423*

Brush holder assembly



***Will Fit These Starters Only:**

ARCO 3423, Hitachi S108-87A, Yamaha 6F5-81800-11





REPLACEMENT OUTBOARD STARTERS

3424 (NEW)

FITS: YAMAHA, MARINER
55-60 HP 2-Cyl, 2 Stroke Engines
Replaces: Hitachi S114-221
9-tooth drive gear



DV524*
9-tooth
drive gear



SR424*
Brush holder
assembly



***Will Fit These Starters Only:**

ARCO 3424, Hitachi S114-221J, Yamaha 697-81800-13

3427 (NEW)

FITS: YAMAHA
1994-1999 75 HP;
1991-1996 85 HP;
1984-UP 90 HP
Replaces: Hitachi S114-263B,
9-tooth drive gear



DV527*
9-tooth
drive gear



SR427*
Brush holder
assembly



***Will Fit These Starters Only:**

ARCO 3427, Hitachi S114-263B, Yamaha 688-81800-12

3425 (NEW)

FITS: YAMAHA
1984-1988 40-50 HP
Replaces: Hitachi S108-99B
9-tooth drive gear



DV525*
9-tooth
drive gear



SR425*
Brush holder
assembly



***Will Fit These Starters Only:**

ARCO 3425, Hitachi S108-99B, Yamaha 6H4-81800-12

3428 (NEW)

FITS: YAMAHA 115-225 HP, 2 Stroke
Replaces: Hitachi S114-552, S114-660
9-tooth drive gear



DV528*
9-tooth
drive gear



SR428*
Brush holder
assembly



***Will Fit These Starters Only:**

ARCO 3428, Hitachi S114-660B, Yamaha 6N7-81800-10

3426 (NEW)

FITS: YAMAHA
1984-1996 115-200 HP, 2 Stroke
1995-2000 40-50 HP, 4 Stroke
MERCURY 40-50 HP, 4 Stroke
S/N OG472132 & BELOW
Replaces: Hitachi S114-323
9-tooth drive gear



DV526*
9-tooth
drive gear



SR426*
Brush holder
assembly



***Will Fit These Starters Only:**

ARCO 3426, Hitachi S114-323C, Yamaha 6E5-81800-12

3429 (NEW)

FITS: YAMAHA
1998-UP V200;
1994-UP 225 HP
1990-UP 250 HP
Replaces: Hitachi S114-559B
9-tooth drive gear



DV529*
9-tooth
drive gear



SR429*
Brush holder
assembly



***Will Fit These Starters Only:**

ARCO 3429, Hitachi S114-559B, Yamaha 61A-81800-01



REPLACEMENT OUTBOARD STARTERS



3430 (NEW)

FITS: YAMAHA
1999-Up 80 HP, 4 Stroke
1999-Up 100 HP, 4 Stroke
MERCURY/MARINER
90 HP, 4 Stroke
 Replaces: Hitachi S114-828B
13-tooth drive gear



3431 (NEW)

FITS: YAMAHA
2000-Up LZ 150-175 HP
2000-Up VZ 150-175 HP
2000-Up Z 150-175 HP
2000-Up LZ 200-Z200 HP
 Replaces: Hitachi S114-836A
13-tooth drive gear



3432 (NEW)

FITS: YAMAHA
2000-Up F115, 4 Stroke
2000-Up LF115, 4 Stroke
MERCURY 90-115 HP EFI, 4 Stroke
 Replaces: Hitachi S114-838A
13-tooth drive gear



3433 (NEW)

FITS: YAMAHA
2004-Up 150 HP, 4 Stroke
2005-Up 250 HP, 4 Stroke
2006-Up 225 HP, 4 Stroke
 Replaces: Hitachi S114-867
13-tooth drive gear



3440 (NEW)

FITS: SUZUKI 75/85 HP,
1988-2000 2 Stroke
 Replaces: Hitachi S114-555
9-tooth drive gear



DV540*
9-tooth
drive gear



SR440*
Brush holder
assembly



***Will Fit These Starters Only:**

ARCO 3440, Hitachi S114-555, Suzuki 31100-95601

3442 (NEW)

FITS: SUZUKI 90/100,
150-225 HP, 2 Stroke
 Replaces: Hitachi
 S114-551, S114-674
8-tooth drive gear



DV542*
8-tooth
drive gear



SR442*
Brush holder
assembly



***Will Fit These Starters Only:**

ARCO 3442, Hitachi S114-674, Suzuki 31100-92E00

3444 (NEW)

FITS: SUZUKI
115-140 HP, 2 Stroke
 Replaces: Hitachi
 S114-437, S114-673
9-tooth drive gear



DV544*
9-tooth
drive gear



SR444*
Brush holder
assembly



***Will Fit These Starters Only:**

ARCO 3444, Hitachi S114-673, Suzuki 31100-94610





REPLACEMENT OUTBOARD STARTERS

Tech Tip • Excess oil or grease may cause drive failure.
• Be sure to follow the lubrication directions shown on page 17.



“DO NOT”

SPRAY OIL OR OTHER LUBRICANTS ON O/B STARTER DRIVES

The O/B Starter Drives are Rubber Cushioned Drives. If any oil gets between the compression nut and the rubber grip surface, drive failure will result.



“DO”

REMOVE THE DRIVE ASSEMBLY WHEN APPLYING LUBE TO THE SHAFT

Always remove the drive assembly before applying lube to the shaft. Only apply a thin film of water resistant grease to the shaft. Make sure to wipe off any excess.

3446 (NEW)

FITS: HONDA
40 HP, 4 Stroke
Replaces: Hitachi S114-677, S114-561;
Honda 31200-ZV5-0130, 31200-ZV6A-0130
9-tooth drive gear
CW Rotation



SR446*
Brush holder assembly

***Will Fit These Starters Only:**
ARCO 3446, Hitachi S114-677, Honda 31200-ZV6A-0130

5359 (NEW)

FITS: MERCURY/MARINER
8, 9.9, 13.5, 15 HP, 4 Stroke
YAMAHA 15 HP, 4 Stroke
9-tooth drive gear



DV359
9-tooth drive gear

SR359
Brush holder assembly

3447 (NEW)

FITS: HONDA
2002 - UP 115 & 130 HP
Replaces: Mitsubishi MOT 60381;
Honda: 31200-ZW5-003
13-tooth drive gear



5360 (NEW)

FITS: MERCURY
2001-UP 40, 50, 60 HP
4-cyl, 4 Stroke
9-tooth drive gear



DV360
9-tooth drive gear

SR360
Brush holder assembly

5358 (NEW)

FITS: EVINRUDE
40, 50, 75, 90 HP
E-Tec Models
9-tooth drive gear



DV358
9-tooth drive gear

SR358
Brush holder assembly

5361 (NEW)

FITS: O.M.C.
1993-UP 9.9-15 HP
Small 10-tooth drive gear
2" casing



DV361
Small 10-tooth drive gear

SR361
Brush holder assembly



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REPLACEMENT OUTBOARD STARTERS



Tech Tip

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• Be sure to follow the lubrication directions shown on page 17.

NOTE

When ordering drive assemblies for B.R.P./O.M.C. starters, be aware that some B.R.P./O.M.C. outboard starters use a 2-piece drive assembly; older B.R.P./O.M.C. starters use a 1-piece drive assembly.

ORDER THE CORRECT DRIVE. THEY ARE NOT INTERCHANGEABLE!

5362 (NEW)
FITS: MERCURY 40-50 HP
1997-UP 4-Stroke
9-tooth metric drive gear

DV362
9-tooth metric drive gear



SR362
Brush holder assembly

5363 (NEW)
FITS: O.M.C.
1991-UP 150-175 HP
V6 Eagle-Series
1997-UP V4 and V6
2003 75/90/115 HP
2003-UP 90/105/115
60° Engine
2004-UP 100-175 HP
Direct Injection

SR363
Brush holder assembly

DV517
9-tooth drive gear

DV518
10-tooth drive gear

JSA517
Jack shaft assembly/9-tooth drive gear
Fits Johnson Evinrude carbureted engines

JSA518
Jack shaft assembly/10-tooth drive gear
Fits Johnson Evinrude direct injection engines

5364 (NEW)
FITS: MERCURY
1998-Up 25 HP, 4 Stroke
Yamaha 25HP, 4 Stroke
9-tooth drive gear

DV364
9-tooth drive gear

SR364
Brush holder assembly



5365 (NEW)
FITS: MERCURY
30/40/50/60 HP
1999-Up 3-cyl, 4 Stroke
2000-UP Yamaha
40HP, 4 Stroke
9-tooth drive gear

DV365
9-tooth drive gear

SR365
Brush holder assembly



5366 (NEW)
FITS: MERCURY
35-50 HP
9-tooth drive gear

DV366
9-tooth drive gear

SR366
Brush holder assembly





REPLACEMENT OUTBOARD STARTERS

Tech Tip

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- Be sure to follow the lubrication directions shown on page 17.

NOTE
 When ordering drive assemblies for B.R.P./O.M.C. starters, be aware that some B.R.P./O.M.C. outboard starters use a 2-piece drive assembly; older B.R.P./O.M.C. starters use a 1-piece drive assembly.
ORDER THE CORRECT DRIVE. THEY ARE NOT INTERCHANGEABLE!

5368 (NEW)

FITS: O.M.C.
 1997-2000
 9.9/15 HP, 4-stroke
 10-tooth drive gear



DVK68*
 2-pc drive kit
 *See NOTE



SR368
 Brush holder assembly

5367 (NEW)
FITS: MERCURY/MARINER
 1986-1996 6-15 HP
 1980-2003 18-25 HP
 10-tooth drive gear
 2½" motor casing



DV367
 10-tooth drive gear



SR367
 Brush holder assembly



5369 (NEW)

FITS: O.M.C.
 8/9.9-11 HP
 1997-1998 4 stroke
 1977-1992 9.9-15 HP
 10-tooth drive gear
 2" motor casing



DV369
 10-tooth drive gear



SR369
 Brush holder assembly



Save Time With ARCO SR107 - BRUSH LOADING TOOL See page 75

Makes brush loading as simple as 1-2-3
 The "perfect tool" for loading outboard starter brushes.
 Strong stainless steel construction.



One Tool Fits All These Caps!

(1) Depress Brushes and Slide End Cap In Tool

(2) Insert Armature

(3) Remove Tool Leaving Brushes Loaded For Assembly



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REPLACEMENT OUTBOARD STARTERS



Tech Tip • Excess oil or grease may cause drive failure.
• Be sure to follow the lubrication directions shown on page 17.

NOTE

When ordering drive assemblies for B.R.P./O.M.C. starters, be aware that some B.R.P./O.M.C. outboard starters use a 2-piece drive assembly; older B.R.P./O.M.C. starters use a 1-piece drive assembly.

ORDER THE CORRECT DRIVE. THEY ARE NOT INTERCHANGEABLE!

5370 (NEW)

FITS: O.M.C.
55-75 HP 3-cyl
9-tooth drive gear



DV370*
9-tooth drive gear
*See NOTE

DVK70*
2-pc drive kit
*See NOTE



SR370
Brush holder assembly

5371 (NEW)

FITS: O.M.C.
50-60 HP 2-cyl
9-tooth drive gear



DV371*
9-tooth drive gear
*See NOTE

DVK71*
2-pc drive kit
*See NOTE



SR371
Brush holder assembly

5372 (NEW)

FITS: O.M.C.
85-140 HP; Late-model V4
Small 10-tooth drive gear



DV372*
Small 10-tooth drive gear
*See NOTE

DVK72*
2-pc drive kit
*See NOTE



SR372
Brush holder assembly

5372X (NEW)

FITS: O.M.C.
1969-1970 85-115 HP
1971-1972 85-125 HP
Large 10-tooth drive gear



DV372X
Large 10-tooth drive gear



SR372
Brush holder assembly



5373 (NEW)

FITS: O.M.C.
150-235 HP V6
8-tooth drive gear



DV373
8-tooth drive gear



SR373
Brush holder assembly





REPLACEMENT OUTBOARD STARTERS

Tech Tip

- Excess oil or grease may cause drive failure.
- Be sure to follow the lubrication directions shown on page 17.

NOTE

When ordering drive assemblies for B.R.P./O.M.C. starters, be aware that some B.R.P./O.M.C. outboard starters use a 2-piece drive assembly; older B.R.P./O.M.C. starters use a 1-piece drive assembly.

ORDER THE CORRECT DRIVE. THEY ARE NOT INTERCHANGEABLE!

5374 (NEW)
FITS: MERCURY
 65-85 HP 4-cyl
 10-tooth drive gear



DV374
 10-tooth drive gear



SR374
 Brush holder assembly



5374X (NEW)
FITS: MERCURY
 1956-1957 25-30 HP
 1957 55 HP
 1958 30-55 HP
 1959 35 & 55 HP
 Large 10-tooth drive gear



DV374X
 Large 10-tooth drive gear



SR374
 Brush holder assembly



5375 (NEW)
FITS: MERCURY/MARINER
 50-90 HP/65 HP Jet
 10-tooth drive gear



DV375
 10-tooth drive gear



SR375
 Brush holder assembly



5376 (NEW)
FITS: O.M.C.
 18-40 HP
 11-tooth drive gear



DVK76*
 2-pc drive gear kit
 *See NOTE

DV376*
 11-tooth drive gear
 *See NOTE



SR376
 Brush holder assembly



5377 (NEW)
FITS: MERCURY/MARINER
 90-175 HP Inline
 150 HP V6
 10-tooth drive gear



DV377
 10-tooth drive gear



SR377
 Brush holder assembly



REPLACEMENT OUTBOARD STARTERS



Tech Tip

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- Be sure to follow the lubrication directions shown on page 17.

NOTE

When ordering drive assemblies for B.R.P./O.M.C. starters, be aware that some B.R.P./O.M.C. outboard starters use a 2-piece drive assembly; older B.R.P./O.M.C. starters use a 1-piece drive assembly.

ORDER THE CORRECT DRIVE. THEY ARE NOT INTERCHANGEABLE!

5378X (NEW)

FITS: MERCURY/MARINER
V150 HP, V175 HP
Large 10-tooth drive gear



DV378X
Large 10-tooth drive gear



SR380

Brush holder assembly



5380 (NEW)

FITS: MERCURY/MARINER
135-200 HP V6
105 HP Jet
8-tooth drive gear



DV380

8-tooth drive gear



SR380

Brush holder assembly



5381 (NEW)

FITS: MERCURY
1999-UP 2.5 DFI
1996-1999 200 HP V6 DFI
1998-UP 225 HP V6 DFI
1999-UP 3.0L V6
9-tooth drive gear



DV381

9-tooth drive gear



SR381

Brush holder assembly



5379 (NEW)

FITS: MERCURY/MARINER
40-50 HP
10-tooth drive gear



DV379
10-tooth drive gear



SR379

Brush holder assembly



5381X (NEW)

FITS: MERCURY/MARINER
150-225 HP
9-tooth drive gear



DV381

9-tooth drive gear



SR380

Brush holder assembly





REPLACEMENT OUTBOARD STARTERS

Tech Tip

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• Be sure to follow the lubrication directions shown on page 17.

NOTE
When ordering drive assemblies for B.R.P./O.M.C. starters, be aware that some B.R.P./O.M.C. outboard starters use a 2-piece drive assembly; older B.R.P./O.M.C. starters use a 1-piece drive assembly.
ORDER THE CORRECT DRIVE. THEY ARE NOT INTERCHANGEABLE!

5382 (NEW)
FITS: CHRYSLER/FORCE
35-50 HP
11-tooth drive gear



DV382
11-tooth drive gear



SR382
Brush holder assembly



5384 (NEW)
FITS: MERCURY/MARINER
2.0L, 2.4L, 2.5L V6,
COUNTER-ROTATING,
RACING OUTBOARDS
10-tooth drive gear



DV384
10-tooth drive gear



SR384
Brush holder assembly



5385 (NEW)
FITS: MERCURY
35-40 HP, 2-cyl
10-tooth drive gear



DV385
10-tooth drive gear



SR385
Brush holder assembly



5386 (NEW)
FITS: O.M.C.
1985-Up
120-140 HP V4
10-tooth drive gear



DV386*
10-tooth drive gear
*See NOTE



DVK86*
2-pc drive kit
*See NOTE



SR386
Brush holder assembly



5387 (NEW)
FITS: O.M.C.
V6, V8 loop
10-tooth drive gear



DV387
10-tooth drive gear



SR387
Brush holder assembly



REPLACEMENT OUTBOARD STARTERS



Tech Tip • Excess oil or grease may cause drive failure.
• Be sure to follow the lubrication directions shown on page 17.

NOTE

When ordering drive assemblies for B.R.P./O.M.C. starters, be aware that some B.R.P./O.M.C. outboard starters use a 2-piece drive assembly; older B.R.P./O.M.C. starters use a 1-piece drive assembly.

ORDER THE CORRECT DRIVE. THEY ARE NOT INTERCHANGEABLE!

5388 (NEW)
FITS: MERCURY
50-60 HP, 3-cyl,
1991-1996 45 HP Jet
10-tooth drive gear



DV388
10-tooth drive gear



SR388
Brush holder assembly



5389 (NEW)
FITS: O.M.C.
1989-Up 25, 40, 50 HP; 2-cyl
1990-Up 48-50 HP
9-tooth drive gear



DV389*
9-tooth drive gear
*See NOTE



DVK89*
2-pc drive kit
*See NOTE



SR389
Brush holder assembly



5390 (NEW)
FITS: O.M.C.
1987-1993 20-35 HP; 2-cyl
9-tooth drive gear



DV390*
9-tooth drive gear
*See NOTE



DVK90*
2-pc drive kit
*See NOTE



SR390
Brush holder assembly



5392 (NEW)
FITS: MERCURY/MARINER
100-125 HP Inline 4-cyl;
80 HP Jet
8-tooth drive gear



DV392
8-tooth drive gear



SR392
Brush holder assembly



5393 (NEW)
FITS: CHRYSLER/FORCE
70-150 HP
9-tooth drive gear



DV393
9-tooth drive gear



SR393
Brush holder assembly





REPLACEMENT OUTBOARD STARTERS

Tech Tip • Excess oil or grease may cause drive failure.
 • Be sure to follow the lubrication directions shown on page 17.

NOTE
 When ordering drive assemblies for B.R.P./O.M.C. starters, be aware that some B.R.P./O.M.C. outboard starters use a 2-piece drive assembly; older B.R.P./O.M.C. starters use a 1-piece drive assembly.
ORDER THE CORRECT DRIVE. THEY ARE NOT INTERCHANGEABLE!

5394 (NEW)
 Determine location of the battery stud on starter being replaced before ordering - See **5397**
FITS: FORCE
 1996-1999 40-50 HP
 13-tooth drive gear



Battery stud exits **BOTTOM** of starter

DV394
 13-tooth drive gear

SR394
 Brush holder assembly

5396 (NEW)
FITS: MERCURY
 1994-1996 30-40 HP, 2-cyl, 55-60 HP
 1997-Up 45 HP Jet
 10-tooth drive gear



DV396
 10-tooth drive gear

SR396
 Brush holder assembly

5397 (NEW)
 Determine location of the battery stud on starter being replaced before ordering - See **5394**
FITS: FORCE
 1992-1995 40 HP
 1992-1995 50 HP
 13-tooth drive gear



Battery stud exits **SIDE** of starter

DV397
 13-tooth drive gear

SR397
 Brush holder assembly

5395 (NEW)
FITS: MERCURY/MARINER
 1994-Up 225 HP
 8-tooth drive gear



DV395
 8-tooth drive gear

SR395
 Brush holder assembly

5398 (NEW)
FITS: O.M.C.
 1997-1999
 25-35 HP 3-cyl
 10-tooth drive gear



DVK98*
 2-pc 10-tooth drive gear
 *See Note

SR398
 Brush holder assembly



REPLACEMENT OUTBOARD STARTERS



Tech Tip

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- Be sure to follow the lubrication directions shown on page 17.

NOTE

When ordering drive assemblies for B.R.P./O.M.C. starters, be aware that some B.R.P./O.M.C. outboard starters use a 2-piece drive assembly; older B.R.P./O.M.C. starters use a 1-piece drive assembly.

ORDER THE CORRECT DRIVE. THEY ARE NOT INTERCHANGEABLE!

5399 (NEW)

MOTOR ONLY

FITS: O.M.C.

90-115 HP

1997-UP 60° V4

1998-2000 80 HP

1998-2000 100 HP



DV517

9-tooth drive gear



SR399

Brush holder assembly



JSA517

Jack shaft assembly/9-tooth drive gear

Fits Johnson Evinrude carbureted engines



5400 (NEW)

FITS: MERCURY

2001-UP

135-250 HP

200-250 Sport Jet

2005-UP

VERADO 4 STROKE

200-275 HP

14-tooth drive gear



SW463

Replacement solenoid

5551 (NEW)

FITS: CHRYSLER

25-35 HP

Large 10-tooth drive gear



DV551

Large 10-tooth drive gear



SR551

Brush holder assembly



7325 (NEW)

FITS: MERCURY/FORCE

90-120 HP Sport Jet

9-tooth drive gear



DV325

9-tooth drive gear



SR325

Brush holder assembly



7326 (NEW)

FITS: MERCURY

1996-UP V6 Sport Jet

8-tooth drive gear



DV326

8-tooth drive gear



SR326

Brush holder assembly



We could tell you why your starter failed, but we thought you might like to see for yourself.

If left unchecked, these problems will result in premature starter failure REGARDLESS of the STARTER MANUFACTURER.



Although the outside of the starter (at bottom right) looks fine, the flywheel picked up water from the bilge and pumped it inside the starter causing the corrosion shown here.

WATER INTRUSION IS THE #1 CAUSE OF STARTER FAILURE. If water gets pumped into the motor portion of the starter from the flywheel, it will not drain out. As you can see, rust and corrosion will destroy the inside components of the starter.

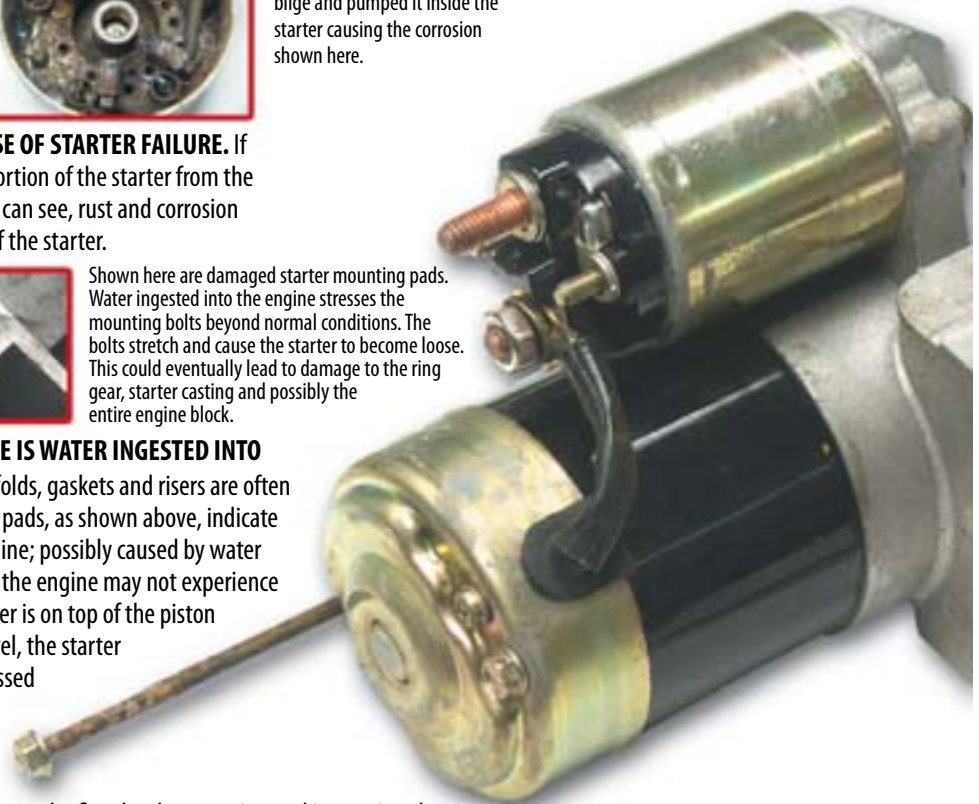


Shown here are damaged starter mounting pads. Water ingested into the engine stresses the mounting bolts beyond normal conditions. The bolts stretch and cause the starter to become loose. This could eventually lead to damage to the ring gear, starter casting and possibly the entire engine block.

THE #2 CAUSE OF STARTER FAILURE IS WATER INGESTED INTO THE ENGINE. Leaking exhaust manifolds, gaskets and risers are often the source. Damage to the mounting pads, as shown above, indicate the starter has been loose on the engine; possibly caused by water ingestion into the cylinder. Although the engine may not experience a complete hydro lock, if enough water is on top of the piston to raise the compression to a high level, the starter bolts and mounting pads will be stressed beyond normal load conditions.

DON'T BE FOOLED BY OUTWARD APPEARANCES. As shown here, the outside condition of the starter appears to be fine, but by removing and inspecting the lower starter case bolt, it is obvious water has gotten inside the starter.

These problems are not the fault of the starter. Simply replacing the starter without first locating and correcting the source of water intrusion will only result in more starter failures.



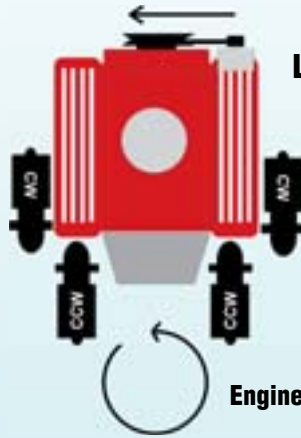
**Questions?
In need of a replacement starter?
Give us a call.**



Tech Tip

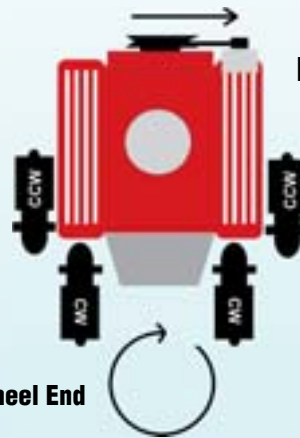
These types of damage are NOT COVERED BY WARRANTY

How To Determine The Correct Starter Rotation



Left Hand Engine Rotation

This is the most common engine rotation found on today's marine engines. This is the same rotation as automotive engines. Use these charts to determine the correct starter rotation needed.



Right Hand Engine Rotation

This is not very common on today's marine engines. This is the opposite rotation of automotive engines.

Engine Rotation Viewed From The Flywheel End

Another way to determine the starter rotation is to inspect the chamfer on the starter drive gear. The bevel will always be on the trailing edge.



Clockwise Rotation



Counter Clockwise Rotation

Important Check Points



Worn Out Battery

Batteries cause more trouble than any other component in a marine electrical system.

Always make sure the battery is completely charged and load tested before replacing other components.



Loose Connections

Be sure to check all the terminals and connections and make sure they are clean and tight.

Important Check Points



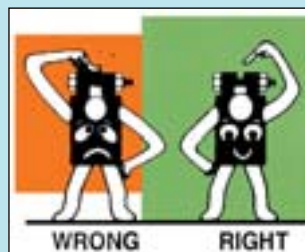
High Resistance

This is a very common problem found in marine electrical systems. Corrosion, undersized wire, or bad connections will cause low voltage to the electrical components. Low voltage causes high heat and will destroy electrical devices. Be sure to check for voltage drops.



Incorrect Wiring

Incorrect wiring can cause burnouts. Always tag the wires when removing an electrical component. **If you are not sure how to connect the wires call our technical department toll free at 800-722-2720.**



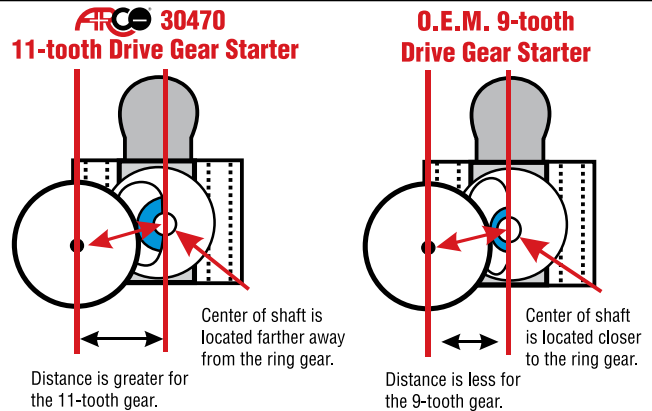
Loose Battery Clamps

Cable terminals must be tight. If the ends of the clamps touch at the top, disconnect the cable clamps and shave the ends of the clamp jaws with a file so there is a gap.

DRIVE GEARS

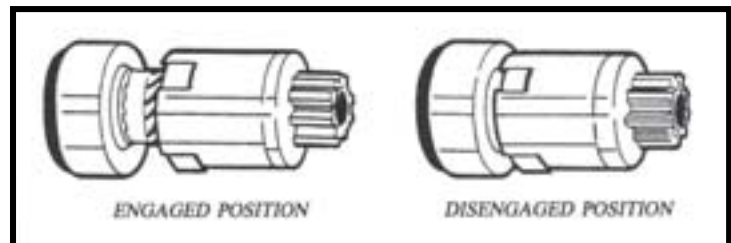
DID YOU KNOW...

Did you know the gear profile for the 9-tooth O.E.M. gear reduction starter and the 11-tooth ARCO High Performance gear reduction starter are the same? The only difference is the diameter of the drive gear. Since the 11-tooth drive gear has two more teeth it is naturally larger in diameter. To compensate for its smaller diameter, the center of the 9-tooth drive gear is located closer to the flywheel. Both starters are thus completely interchangeable. These are powerful starters and we are able to take advantage of a better gear ratio using this 11-tooth gear.



INERTIA DRIVES GEARS

As shown here, spinning the drive with a wire wheel in the direction it clicks will disengage the locks.



Do not condemn a drive until it has been tried in actual operation and proven faulty.

The Folo-Thru type drive currently used on many starting motors has brought about difficulty due to a misunderstanding of operating and lack of information on proper servicing. This fact has been reflected by the number of drives returned for warranty which are fully operative.

The Folo-Thru drive is designed to lock and remain in the extended or engaged position until the engine starts and reaches approximately 400 to 500 RPM. The drive to flywheel rotation is fifteen to one. When the engine is turning at 400 RPM, the starter drive gear is turning 6,000 RPM. If the drive is locked in the extended position it has to be reinstalled on the engine and the engine started or the drive must be turned in excess of 6,000 RPM by a wire wheel mounted on an electric bench grinder to make it disengage.

The reason the pinion locks in the engaged position is to assure the starter continues to crank until the engine has started, thus preventing false starts. This is accomplished by using a spring loaded pin which rides on one of the pinion screw threads and drops into a hole when the pinion is in the fully engaged position. This locks the pinion in the engaged position. When the engine starts, the flywheel of the engine drives the starter pinion. A clutch mechanism is built into the pinion to protect the starter from excessive RPM.

The clutch allows the pinion to turn faster or overrun the armature shaft. When the engine reaches 400-500 RPM, the pinion spins fast enough to create the needed centrifugal force to throw the spring loaded pin out of the hole in the shaft and allow the pinion to disengage.

REPLACEMENT INBOARD STARTERS



Tech Tip Rust, Corrosion or Submersions are NOT COVERED BY WARRANTY

ARCO treats every component with special rust and corrosion resistant coatings to prevent water damage. However, it is impossible to protect the unit from direct contact with water. Therefore, a failure directly caused by rust, corrosion or submersion is not covered by warranty.

30433 (NEW)
VALUE PRICED!
STANDARD DUTY
Direct O.E.M. replacement
gear reduction starter.
FITS: ALL GM ENGINES

with 14" flywheel using a staggered bolt pattern.
 Recommended for late model 3.0 Liter with 14" flywheel using tail bracket.



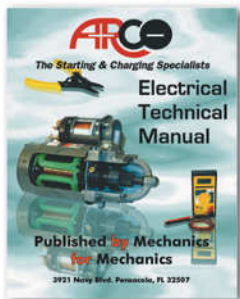
Can also be used in place of 10MT with two long bolt staggered pattern or 30470!

*Mounting bolt kit MBK450 required if replacing 10MT.

SW463 Replacement Solenoid

Electrical Technical Manual Published by Mechanics for Mechanics

TM001
 Electrical Technical Manual



Order Your Copy Today!



30456 (NEW)
HIGH-PERFORMANCE
FITS: MERCUISER, CRUSADER, MARINE POWER, PLEASURECRAFT, AND OTHERS.
 14MT, CW Rotation



30457 (NEW)
HIGH-PERFORMANCE
FITS: MERCUISER, CRUSADER, MARINE POWER, PLEASURECRAFT, AND OTHERS.
 14MT, CCW Rotation



Replaces this 10 MT style starter

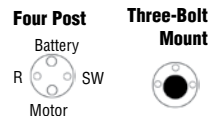
DV456
 CW Rotation Replacement Drive
 Fits: Delco 14 MT, ARCO 30456 starter



DV457
 CCW Rotation Replacement Drive
 Replaces: Mercury 850402
 Fits: Delco 14 MT, ARCO 30457 starter



SW456
 14 MT Replacement Solenoid
 4 Post, 3-Bolt Mount



30459 (NEW)
HIGH-PERFORMANCE
FITS: MERCUISER, CRUSADER, MARINE POWER, AND OTHERS.
 Light weight and compact;
 permanent magnet gear reduction.
CCW Rotation



SW463 Replacement Solenoid





REPLACEMENT INBOARD STARTERS

Tech Tip

Rust, Corrosion or Submersions are

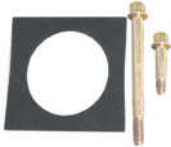
NOT COVERED BY WARRANTY

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30460 (NEW)
HIGH-PERFORMANCE
 Permanent magnet
 gear reduction starter
**FITS: MERCURUISER,
 COBRA, YAMAHA,
 VOLVO PENTA**
 CW Rotation
 12¾" flywheel



INCLUDES
 MOUNTING
 BOLTS & GASKET



Replaces this
 10 MT style
 starter

30460 Will Replace all CW Rotating 10MT Starters with One Long and One Short Bolt Straight Across Pattern.

DV460
 Replacement 9 tooth drive gear
 fits ARCO 30460 only!



SW450
 Replacement solenoid
For ARCO 30460 & 30470 only!
 Does not include
 plunger; see below.
 Order plungers separately.



PA450S
 1¾" Plunger for ARCO SW450
 Fits 30460



PA450L
 2¼" Plunger for ARCO SW450
 Fits 30470



30462 (NEW)
**FITS: 6.0L GM
 ENGINES**
 Permanent magnet
 gear reduction starter
 with two long bolt
 slight offset bolt pattern



SW463 Replacement Solenoid

30470 (NEW)
HIGH-PERFORMANCE
 Permanent magnet
 gear reduction starter
**FITS: VOLVO PENTA,
 MERCURUISER,
 MARINE POWER, ETC.**
 Two long bolt staggered pattern
 14" flywheel, CW Rotation
 Will also replace 9-tooth OEM version.



30470 Will Replace all CW Rotating 10MT Starters with Two Long Bolt Staggered Pattern. DOES NOT INCLUDE MOUNTING BOLT KIT - SEE BELOW.



Replaces this
 10 MT style
 starter

MBK450
 MOUNTING BOLT KIT REQUIRED
 if replacing 10MT style starters.



DV450
 Replacement 11-tooth drive gear



SW450
 Replacement solenoid
For ARCO 30460, & 30470 only!
 Does not include plunger; see below.
 Order plungers separately.



PA450S
 1¾" Plunger for ARCO SW450
 Fits 30460



PA450L
 2¼" Plunger for ARCO SW450
 Fits 30470



50109
HEAVY-DUTY
FITS: CHRYSLER
 318 Marine V8
 Two-bolt mount,
 1 threaded hole
 12 Volt, CW rotation



50110
 12 Volt, CCW Rotation



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REPLACEMENT INBOARD STARTERS



Tech Tip

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NOT COVERED BY WARRANTY

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50134

HEAVY-DUTY

FITS: CHRIS CRAFT, HARMAN MARINE

Three-bolt mount (two 3/8" holes, one 5/16" threaded hole) 12 Volt, **CW Rotation**



50135

12 Volt, **CCW rotation**

50137

HEAVY-DUTY

FITS: CHRIS CRAFT AND OTHERS

Three-bolt mount, (two 3/8" holes, one 5/16" threaded hole) 12 Volt, **CW Rotation**



50138

12 Volt, **CCW rotation**

50141

HEAVY-DUTY

12 Volt, **CCW rotation**



50142

HEAVY-DUTY

FITS: CHRIS CRAFT, VOLVO PENTA V8

Two-bolt mount 12 Volt, **CW rotation**

50143

HEAVY-DUTY

FITS: MERCUISER 470

Threaded mounting stud in case 12 Volt, **CW rotation**



50160

HEAVY-DUTY

FITS: CHRIS CRAFT

Three-bolt housing 12 Volt, **CW rotation**



50161

HEAVY-DUTY

FITS: CHRIS CRAFT 12 Volt, **CCW rotation**

50169

HEAVY-DUTY

FITS: MERCUISER 888, 302, 351 FORDS

Two-bolt mount 12 Volt, **CW rotation**





REPLACEMENT INBOARD STARTERS

Tech Tip

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NOT COVERED BY WARRANTY

ARCO treats every component with special rust and corrosion resistant coatings to prevent water damage. However, it is impossible to protect the unit from direct contact with water. Therefore, a failure directly caused by rust, corrosion or submersion is not covered by warranty.

70106

FITS: CRUSADER AND OTHERS W/FORD ENGINES

Nose extends 2" into flywheel

Two-bolt mount

12 Volt, CW rotation

Side battery terminal



70107

12 Volt, CCW rotation

Side battery terminal

SW394

Replacement solenoid

To be discontinued when present stock is exhausted.

70108

FITS: 460 FORDS

Heavy Duty

12 Volt, CW rotation



To be discontinued when present stock is exhausted.

70117

FITS: MANY LATE MODEL FORDS

Mod II style;

4 1/2" diameter case

Nose extends 2 5/8" into flywheel

Two-bolt mount

12 Volt, CW rotation

Rear battery terminal



To be discontinued when present stock is exhausted.

SW394 Replacement solenoid

70125 (NEW)

Permanent magnet

Gear-reduction starter

FITS: MANY LATE MODEL

5.0L, 5.8L FORDS

12 Volt, CW rotation



SW125

Replacement solenoid

70200 (NEW)

HIGH PERFORMANCE

Permanent magnet

Gear-reduction starter

FITS: 302, 351 FORDS

12 Volt, CW rotation

Kit includes wiring harness to replace conventional starter.



70201 (NEW)

HIGH PERFORMANCE

CCW ROTATION

Same as above except CCW rotation.



Will also replace conventional style starter

SW125 Replacement solenoid



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REPLACEMENT INBOARD STARTERS



Tech Tip

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NOT COVERED BY WARRANTY

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70212 (NEW)
HIGH PERFORMANCE
Permanent magnet
Gear-reduction starter
FITS: 460 FORD ENGINES
Replaces: O.M.C. 988013
12 Volt, CW rotation
Two-bolt mount with 3/8" x 18
threaded mounting ear.
Kit includes wiring harness
to replace conventional starter.



Will also replace
conventional style starter

SW125 Replacement solenoid

70216 (NEW)
HIGH PERFORMANCE
Permanent magnet
Gear-reduction starter
FITS: 2.3L FORD ENGINES
Replaces: O.M.C. 988012
12 Volt, CW rotation
Three-bolt mount.
Kit includes wiring harness
to replace conventional starter.



Will also replace
conventional style starter

SW125 Replacement solenoid

90105 (NEW)
FITS: RENAULT & MERCUISER
70, 80, 90 series, PARIS RHONE
Three-bolt mount
12 Volt, CW rotation



To be discontinued when
present stock is exhausted.

90110 (NEW)
FITS: BUKH & RUGGERINI
DV8, RD80, 180,
181, RF140 series
Replaces: PARIS
RHONE D9E50
Two-bolt mount
12 Volt,
CCW rotation



To be discontinued when
present stock is exhausted.

90120 (NEW)
FITS: PERKINS, RENAULT MARINE,
VOLVO PENTA
Replaces: PARIS RHONE
D11E119T
Three-bolt mount
12 Volt,
CW rotation



SW814
Replacement solenoid

To be discontinued when
present stock is exhausted.



REPLACEMENT INBOARD STARTERS

Tech Tip

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NOT COVERED BY WARRANTY

ARCO treats every component with special rust and corrosion resistant coatings to prevent water damage. However, it is impossible to protect the unit from direct contact with water. Therefore, a failure directly caused by rust, corrosion or submersion is not covered by warranty.

90125 (NEW)
24 Volt, CW rotation
**FITS: PERKINS,
RENAULT MARINE,
VOLVO PENTA**
**Replaces: PARIS RHONE
D11E122T**
Three-bolt mount



To be discontinued when present stock is exhausted.

97308 (NEW)
Bosch Style Starter
**Fits: TAMD120A, TAMD120B,
VOLVO PENTA**
24 Volt, 11-Tooth Drive Gear
CW rotation



To be discontinued when present stock is exhausted.

95949 (NEW)
**FITS: RENAULT MARINE,
VOLVO PENTA**
**Replaces: PARIS RHONE
D11E126, D11E156**
Three-bolt mount
12 Volt, CW rotation



To be discontinued when present stock is exhausted.

98170
Lucas M45G starter
FITS: PERKINS 4-108VA
propulsion
13-tooth drive gear
12 volt, CW rotation



To be discontinued when present stock is exhausted.

97225 (NEW)
Gear-reduction starter
**FITS: VOLVO PENTA TMD40,
TMD41, KAD42 and others.**
**Replaces: PARIS RHONE/VALEO
D9R116, D9R144, D11E167T**
Three-bolt mount, 12 Volt, CW rotation



SW225 Replacement solenoid

DV225 Replacement drive gear



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REPLACEMENT INBOARD STARTERS



Tech Tip

*Rust, Corrosion or Submersions are
NOT COVERED BY WARRANTY*

ARCO treats every component with special rust and corrosion resistant coatings to prevent water damage. However, it is impossible to protect the unit from direct contact with water. Therefore, a failure directly caused by rust, corrosion or submersion is not covered by warranty.

98180 (NEW)

FITS: YANMAR

GM, GM2, GM3,
GM10, GM20/2-20F,
GM30, GMF, 1GM,
2GM, 3GM

Replaces: HITACHI S114-303,
S114-303A



12200

**FITS: MANY MID-SIZE
PERKINS DIESELS**

4 cyl
10-tooth drive gear
12 Volt, **CW** rotation



**To be discontinued when
present stock is exhausted.**

98185 (NEW)

FITS: YANMAR

4JH, QM20,
2QM20, & 2T engines

Replaces: HITACHI S114-483,
S114-815



12202

**FITS: MANY MID SIZE
PERKINS DIESELS**

12-tooth drive gear
12 Volt, **CW** rotation



**To be discontinued when
present stock is exhausted.**

10113 (NEW)

Gear-reduction starter

FITS: VOLVO PENTA

4 cyl, 6 cyl gas
Aluminum pinion housing
w/2 threaded mounting holes

Permanent magnet,
12 volt, **CW** rotation



12205

FITS: CUMMINS

MARINE 6.9L,
PENINSULAR 6.2L,
379T, ETC.

10-tooth drive gear
12 Volt, **CW** rotation



12206

12 Volt, **CCW** rotation

**To be discontinued when
present stock is exhausted.**

12100

**FITS: MANY SMALL
PERKINS DIESELS**

10-tooth gear
12 Volt, **CW** rotation



**To be discontinued when
present stock is exhausted.**

12213 (NEW)

FITS: CUMMINS 6BT,
PENINSULAR,

6.2L DIESEL, ETC.
10-tooth drive gear
12 Volt, **CW** rotation



REVERSABLE TILT-TRIM MOTORS

Today's tilt-trim motors use wire wound or permanent magnet fields.
BEFORE YOU CAN ACCURATELY TEST THE MOTOR YOU MUST KNOW WHAT TYPE IT IS.

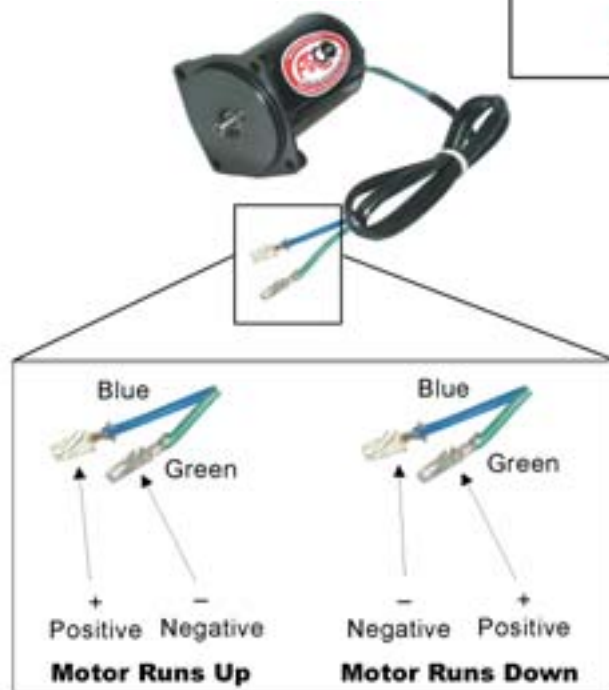
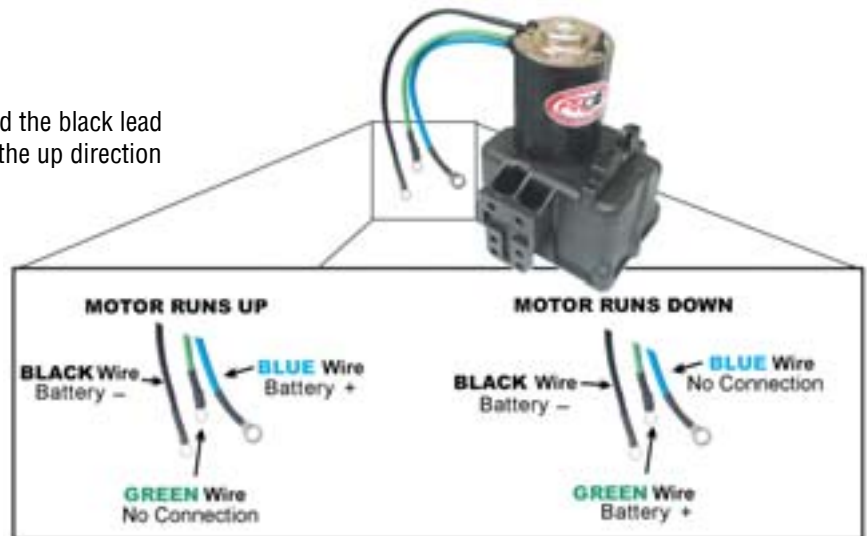
Wire wound field motors will normally have three wires and will usually have four screws placed around the perimeter of the motor case. If the motor has only two wires; it is usually a permanent magnet field motor. However, some older Mercury Marine wire wound field motors have only two wires and use an external ground that is attached to the motor housing. Since wire wound field motors have a higher current draw, solenoids are used to relay battery current to the motor. Permanent magnet field motors draw much less current and miniature relays are used to relay the battery current.

REMEMBER - BLUE SKY (UP) WIRE TO POSITIVE MAKES THE MOTOR RUN IN THE UP DIRECTION
GREEN GRASS (DOWN) WIRE TO POSITIVE MAKES THE MOTOR RUN IN THE DOWN DIRECTION

Wire Wound Field Motor

Connecting the blue lead to battery positive and the black lead to battery negative will make the motor run in the up direction and will raise the outdrive or outboard motor.

Connecting the green wire to battery positive and the black wire to battery negative will make the motor run in the down direction. This will lower the outdrive or outboard motor.



Permanent Magnet Field Motor

Connecting the blue lead to battery positive and the green lead to battery negative will make the motor run in the up direction. This will raise the outdrive or outboard motor.

Connecting the green lead to battery positive and the blue lead to battery negative will make the motor run in the down direction. This will lower the outdrive or outboard motor.

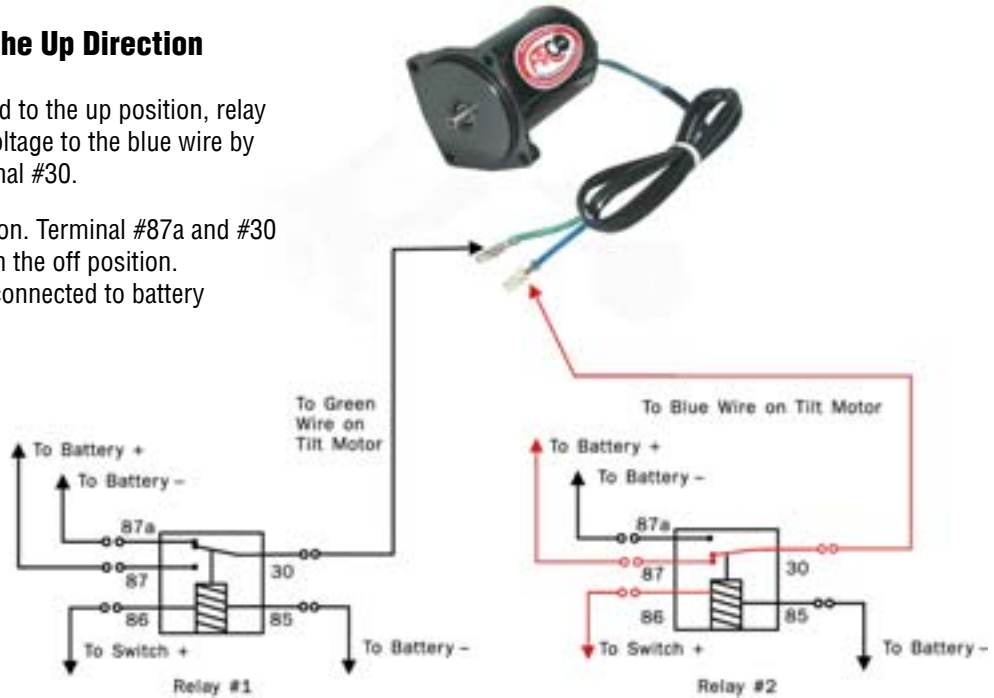
TILT-TRIM MOTOR REVERSING RELAYS

PERMANENT MAGNET FIELD MOTORS

▲ Motor Running In The Up Direction

When the tilt-trim switch is moved to the up position, relay #2 activates supplying positive voltage to the blue wire by connecting terminal #87 to terminal #30.

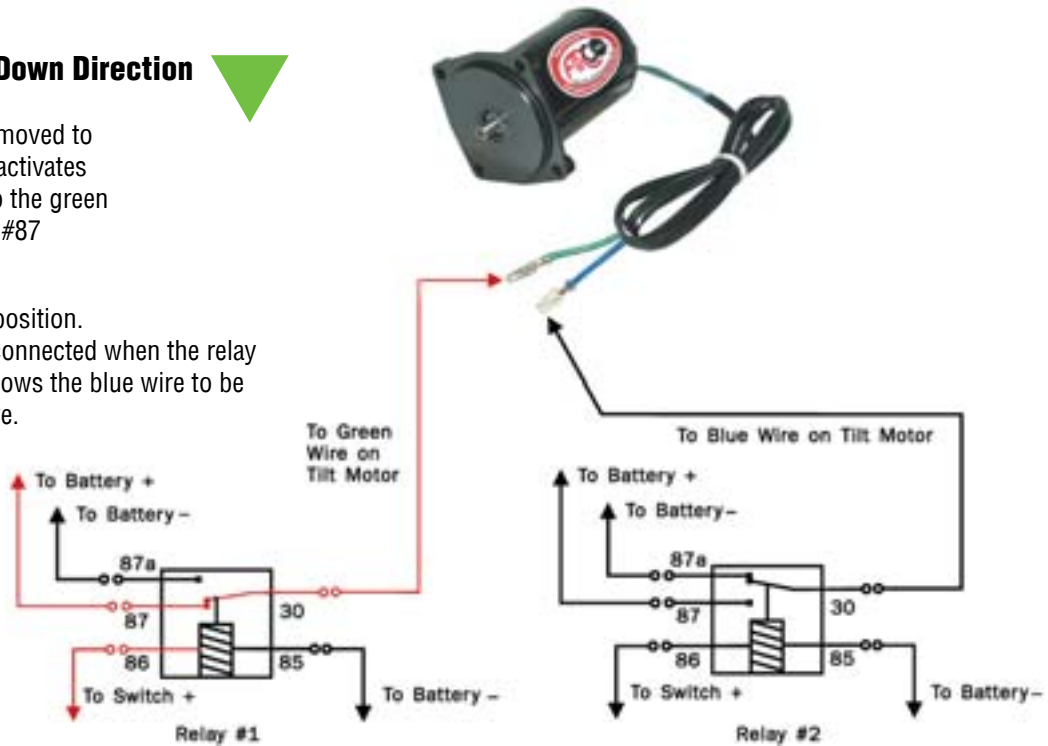
Relay #1 remains in the off position. Terminal #87a and #30 are connected when the relay is in the off position. This allows the green wire to be connected to battery negative.



▼ Motor Running In The Down Direction

When the tilt-trim switch is moved to the down position, relay #1 activates supplying positive voltage to the green wire by connecting terminal #87 to terminal #30.

Relay #2 remains in the off position. Terminal #87a and #30 are connected when the relay is in the off position. This allows the blue wire to be connected to battery negative.

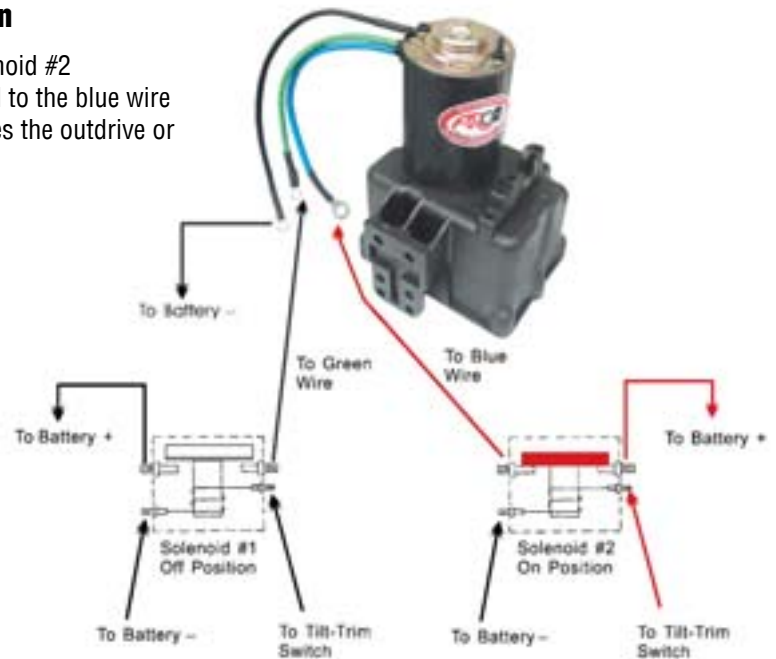


TILT-TRIM MOTOR SOLENOIDS

WIRE WOUND FIELD MOTORS

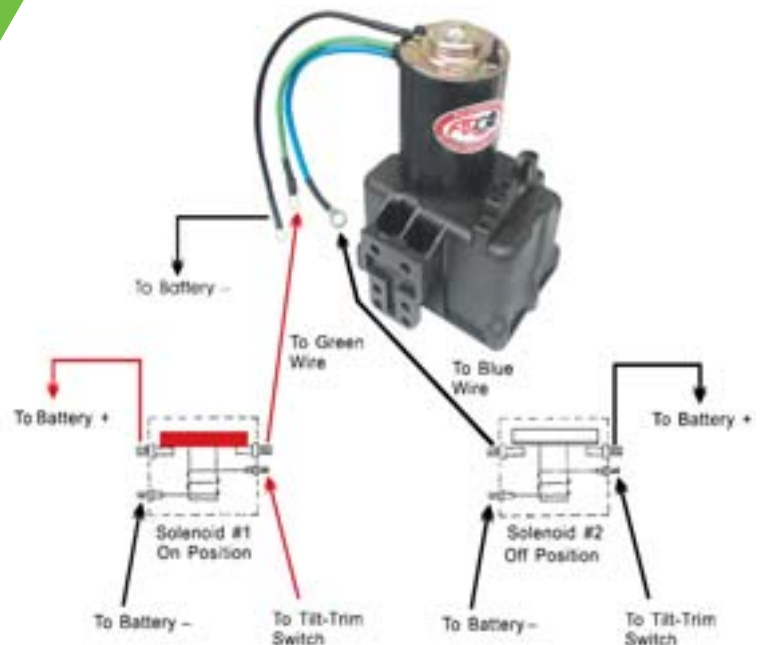
▲ Motor Running In The Up Direction

When the tilt-trim switch is in the up position solenoid #2 is energized and battery positive voltage is supplied to the blue wire making the motor run in the up direction. This raises the outdrive or outboard motor.



▼ Motor Running In The Down Direction

When the tilt-trim switch is in the down position, solenoid #1 is energized and battery positive voltage is supplied to the green wire making the motor run in the down direction. This lowers the outdrive or outboard motor.





DO NOT CUT WIRES OR DISMANTLE UNITS

Cutting a unit's wires or dismantling a unit immediately voids the manufacturer's warranty. Water can easily seep into the motor through cut wiring. In addition, taking a motor off the reservoir and trying to install it on an old reservoir usually damages the brushes in the motor. Disassembled parts are not covered by warranty.

6204 (NEW)
FITS: O.M.C.
 3-wire connection
 2-bolt mount

TR204
 Repair kit



6206 (NEW)
FITS: O.M.C.
 3-wire connection
 3-bolt mount

TR206
 Repair kit



6208 (NEW)
(MOTOR/RESERVOIR ONLY)
FITS: O.M.C.
 3-wire connection

TR208
 Repair kit



To be discontinued when present stock is exhausted.

6209 (NEW)
FITS: O.M.C.
 2-wire connection

TR209
 Repair kit



6211 (NEW)
FITS: O.M.C.
stern-drive 1979-1985
 2.5L, 3.0L
 3-wire connection
 Ring Terminal Ends

TR211
 Repair kit
(Cast Aluminum)



TR210
 Repair kit
(Stamped Steel)



REPLACEMENT TILT/TRIM MOTORS & REPAIR KITS

6213 (NEW)
FITS: GOOD AUTOMATIC WINDLASS
 Ring Terminal Ends



Will also replace units with this style shaft



6214 (NEW)
MOTOR/RESERVOIR ONLY
FITS: O.M.C.
 1979-1985 3.8L, 4.3L, 5.0L, 5.7L
 Stern Drive Engines
 2-wire connection

To be discontinued when present stock is exhausted.



6216 (NEW)
(MOTOR/RESERVOIR ONLY)
FITS: CHRYSLER, O.M.C.
 3-wire connection



6217 (NEW)
(MOTOR/RESERVOIR ONLY)
FITS: B.M.W., MERCURISER, VOLVO PENTA
 Includes: Screws, gasket & adapter
 Ring Terminal Ends

TAK217
 Screws, gasket, adapter



TR217
 Repair kit



To be discontinued when present stock is exhausted.

6218 (NEW)
(MOTOR ONLY)
FITS: MERCURISER I/O'S AND MERCURY OUTBOARDS W/OILDYNE PUMP
 12 Volt
 Ring Terminal Ends



TR218
 Brush kit →



6219
 24 Volt
 Slow speed motor
 Fits Jack lift for racing outboards

Replaces early square-style motor



6220 (NEW)
HEAVY-DUTY
FITS: O.M.C.
 2-wire connection
Includes O-ring
3-bolt mount
 Male Spade Terminal Ends
 96" Leads



R473
 Relay available



6220X (NEW)
HEAVY-DUTY, FITS: O.M.C.
 2-wire connection, **Includes O-ring, 3-bolt mount**
 Male Spade Terminal Ends
 62" Leads

6223 (NEW)
HEAVY-DUTY
FITS: VOLVO PENTA
 Female Spade Terminal Ends



REPLACEMENT TILT/TRIM MOTORS & REPAIR KITS



6224 (NEW)

(COMPLETE)

FITS: VOLVO PENTA

Includes: Hydraulic valve body
Ring Terminal Ends



6225 (NEW)

(MOTOR/ RESERVOIR ONLY)

Fits: PRESTOLITE

To be discontinued
when present stock
is exhausted



← Replaces this style
Prestolite Pump

6228 (NEW)

HEAVY-DUTY

(MOTOR ONLY)

FITS: MANY SMALL

O.M.C. OUTBOARDS

Includes gasket



Fits: O.M.C. Pump
No. 173946



TR228

Repair kit



To be discontinued
when present
stock is exhausted.

6227 (NEW)

(COMPLETE)

FITS: VOLVO PENTA - THRU 1999

W/OILDYNE PUMP



6232

(MOTOR ONLY)

M531 (NEW)

RESERVOIR KIT

FITS: ARCO 6227

Includes: Reservoir,
cap, and O-ring



Fits Oildyne Pump ONLY

For new style 4 screw
mount see M533 in
miscellaneous section

6231 (NEW)

(MOTOR ONLY)

FITS: U.S. MARINE

W/OILDYNE PUMP

2-wire connection

Female Spade Terminal

Ends



6232 (NEW)

(MOTOR ONLY)

FITS: ARCO 6227,

LATE MODEL

VOLVO PENTA

W/OILDYNE PUMP

2-wire connection



NOTE:

Distance between
mounting bolts: 2.5"
Bolt size: 10x32 fine thread



REPLACEMENT TILT/TRIM MOTORS & REPAIR KITS

6233 (NEW)

FITS: LATE MODEL VOLVO PENTA SX MODELS.

Replaces Teleflex Motor and Volvo part number 3861575



NOTE:

Distance between mounting bolts: 2.3"
Bolt size: 10x24 coarse thread

6237 (NEW)

HEAVY-DUTY FITS: HONDA

2004-Up BF40, BF50
4-bolt mount,
Round Plug-In Connector
Includes O-ring
Replaces Honda part number 36120-ZW4-H12



6234 (NEW)

HEAVY-DUTY FITS: HONDA
2002-Up BF200, BF225
4-bolt mount,
Round Plug-In Connector
Includes O-ring
Replaces Honda part number 36120-ZY3-013



6238 (NEW)

HEAVY-DUTY Fits: O.M.C.
1998-Up
75 HP-250 HP FFI Outboard Engines
4-bolt mount,
Female Sealed Terminal Ends
Includes O-ring



6235 (NEW)

HEAVY-DUTY FITS: HONDA
2004-Up BF135, BF150
4-bolt mount,
Round Plug-In Connector
Includes O-ring
Replaces Honda part number 36120-ZY6-013



6236 (NEW)

HEAVY-DUTY FITS: HONDA
2007-Up BF75, BF90
4-bolt mount,
Round Plug-In Connector
Includes O-ring
Replaces Honda part number 36120-ZY9-003



6239 (NEW)

HEAVY-DUTY FITS: HONDA
1992-2002 35-50 HP
2-wire connection
Includes O-ring
4-bolt mount
Hollow-hex shaft
Female Spade Terminal Ends



6240 (NEW)

HEAVY-DUTY
FITS: YAMAHA
 1997-UP 115 HP
 2000-UP 115 HP 4-Stroke
 1997-2000 130 HP
 1997-UP 150-200 HP
 1998-UP 225 HP
 2-wire connection
4-bolt mount,
 Ring Terminal Ends
Includes O-ring



6243 (NEW)

HEAVY-DUTY
FITS: O.M.C.
 1989-1992 M-suffix 40, 48, 50 HP
 2-wire connection;
4-bolt mount, Includes O-ring
Hollow-hex shaft
 Male Spade Terminal Ends



R473

Relay available

6244 (NEW)

HEAVY-DUTY
FITS: O.M.C.
 1993 V6
 1993-Up Commercial V8
 2-wire connection;
3-bolt mount,
Includes O-ring
Flat-blade shaft
 Female Spade Terminal End



R473

Relay available

6241 (NEW)

HEAVY-DUTY
FITS: O.M.C. 60, 70, 90,
 115, 150, 175 HP
 1991-Up 200, 225 HP,
 1991-94 120, 140 HP
 1995-Up 50 HP 3-cyl, 60 HP, V4 130 HP
 1997-Up 115-200 HP
 1998-99 225 HP 2-wire connection
4-bolt mount, Flat-blade shaft
 Female Spade Terminal Ends



**Includes O-ring and adaptor to
 replace motors with hollow hex shafts**

R473

Relay available

**ALSO REPLACES OEM MOTORS WITH
 HOLLOW HEX SHAFT**

6247 (NEW)

HEAVY-DUTY
FITS: EVINRUDE ETEC
 2005-2009 70-90 HP
 2007-2009 115 HP
 2009- 130 HP
 2-wire connection
4-bolt mount, Includes
TAK247 mounting kit,
Flat-blade shaft



TAK247

**Mounting bolts, flat washers,
 O-ring and couplers**

6242 (NEW)

HEAVY-DUTY
FITS: O.M.C.
 1992-Up J-suffix 40, 48, 50 HP
 2-wire connection
Includes O-ring, 4-bolt mount
Hollow-hex shaft
 Female Spade Terminal Ends



R473

Relay available

6248 (NEW)

HEAVY-DUTY
FITS: EVINRUDE ETEC
 2005-2009 40-50 HP
 2006-2009 60 HP
 2009- 25-30 HP
 2-wire connection
4-bolt mount, Includes
TAK247 mounting kit,
Flat-blade shaft



TAK247

**Mounting bolts, flat washers,
 O-ring and couplers**



REPLACEMENT TILT/TRIM MOTORS & REPAIR KITS

6250 (NEW)

HEAVY-DUTY

FITS: Late model MERCURY

135, 150 XR6, Magnum III,
175, 200, 225, 250 HP,
105-140 HP Jet

2-wire connection,

2-bolt mount

Includes O-ring

Flat-blade shaft

Bullet Connector Terminal Ends



This motor will NOT replace an early model Mercury cartridge pump motor!

6255 (NEW)

HEAVY-DUTY

FITS: Late model MERCURY/FORCE

25-50 HP outboards

2-wire connection

4-bolt mount

Flat-blade shaft

Bullet Connector

Terminal Ends



6257 (NEW)

HEAVY-DUTY

FITS: YAMAHA

2004-2015 50/60HP

4 Stroke, 2-wire

connection

3-bolt mount, ring

terminal ends

Includes O-ring

Replaces Yamaha part numbers

6C5-43880-01 & 6C5-43880-00



Available Fall 2016.

6258 (NEW)

HEAVY-DUTY

FITS: YAMAHA

2005-UP 75 HP 4 Stroke

2005-UP 90 HP 4 Stroke

2-wire connection

4-bolt mount

Includes O-ring & Coupler

Ring Terminal Ends



6259 (NEW)

HEAVY-DUTY

FITS: YAMAHA

2001-2004 50 HP 4 Stroke

2002-2004 60 HP 4 Stroke

2001-2006 40 HP 2 Stroke (TLR)

2003-2009 50 HP 2 Stroke (TLR)

2-wire connection

3-bolt mount

Includes O-ring

Ring Terminal Ends



6260 (NEW)

HEAVY-DUTY

FITS: YAMAHA

1992-2002 90 HP

1992-1995 50-90 HP

1994 40 HP; 1996 70-90 HP

1997-Up 60, 70, 90 HP

2-wire connection,

3-bolt mount

Includes O-ring

Flat-blade shaft

Ring Terminal Ends



6261 (NEW)

HEAVY-DUTY

FITS: YAMAHA

1999-2004 75, 80, 90 &

100 HP 4 Stroke O/B Engines

2-wire connection

4-bolt mount,

Ring Terminal Ends

Includes O-ring



6263 (NEW)

HEAVY-DUTY

FITS: YAMAHA

2002-2009 200, 225,

250 HP 4 Stroke

2002-2009 200-300 HP

2 Stroke

2-wire connection

3-bolt mount

Includes O-ring

Ring Terminal Ends



© ARCO STARTING & CHARGING SPECIALISTS

6264 (NEW)
HEAVY-DUTY
FITS: YAMAHA
1985-1992
 40-50 HP
 2-wire connection
4-bolt mount,
Includes O-ring
 Ring Terminal Ends



6268 (NEW)
FITS: SUZUKI
1991-1997 DT90,
1991-2000 DT100,
1991-2003 DT150,
1991-1992 DT175,
1991-2000 DT200,
1991-2003 DT225
 2-wire connection
3-bolt mount
Includes O-ring and adaptor
 Ring Terminal Ends



6265 (NEW)
HEAVY-DUTY
FITS: YAMAHA
1987-1995
 115-200 HP Outboards
1990-1993 225 HP
 2-wire connection
3-bolt mount
Includes O-ring
Flat-blade shaft
 Ring Terminal Ends



6269 (NEW)
FITS: SUZUKI DT 150/200
 3-wire connection
3-bolt mount
Includes O-ring
 Ring Terminal Ends



6266 (NEW)
FITS: YAMAHA
1995-Up 40/50 HP
 2-wire connection
3-bolt mount
Includes O-ring
 Ring Terminal Ends



6270 (NEW)
(COMPLETE)
FITS: Late model MERCURY
 225-275 HP Outboards w/Oildyne pump
 Ring Terminal Ends



6271 (NEW)
(COMPLETE)
 Slow speed unit used for racing applications

6274 (NEW)
HEAVY-DUTY
FITS: Late model MERCURY/MARINER & FORCE 75-125 HP
 outboards w/single ram 3-wire connection;
4-bolt mount
 Hollow-hex shaft
 (Motor/Reservoir Only for Trim Pump Assembly 824051)
Includes stainless steel mounting screws, shaft adaptor, O-ring and fill plug.
 Ring Terminal Ends



6267 (NEW)
FITS: YAMAHA
 Early 70, 90, 115, 150-200 HP
 3-wire connection
3-bolt mount
 Ring Terminal Ends
 4-mm thick shaft blade with 68.3-mm mounting collar.
Includes O-ring





REPLACEMENT TILT/TRIM MOTORS & REPAIR KITS

6275 (NEW)
(COMPLETE)
FITS: Late model MERCUISER
 w/Oildyne pump
 Ring Terminal Ends



6218 MOTOR ONLY

M525 (NEW)
 Reservoir kit
FITS: ARCO 6275
Includes: Reservoir, cap, O-ring,
mounting screw



For new style 4 screw mount
 Mercruiser 883166A2 see **M532**
 in miscellaneous section

6277 (NEW)
HEAVY-DUTY
(MOTOR ONLY)
FITS: ARCO
 cartridge pump 6278 only!
2-bolt mount
 Ring Terminal Ends



TR277
 Repair kit

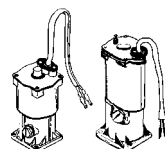


Motor WILL NOT replace original Mercury pump.

6276 (NEW)
HEAVY-DUTY
FITS: Late model
MERCURY/MARINER, FORCE
 40-125 HP outboards
 w/single ram
 2-wire connection
4-bolt mount
 Hollow-hex shaft
 (Motor/Reservoir Only)
Includes stainless
steel mounting screws, shaft adaptor,
O-ring and fill plug.
 Bullet Connector Terminal Ends



Will also replace these style units



TAK276
 Mounting bolts, O-ring, fill cap and
 shaft adapters for tilt/trim motors



6279 (NEW)
HEAVY-DUTY
FITS: MERCURY/MARINER
 outboards w/Design II
 3 ram, three-wire trim units
 Hollow-hex shaft
W/AFT FILL RESERVOIR
 3-wire connection
2-bolt mount
Shaft adaptor and
O-ring included.
 Ring Terminal Ends



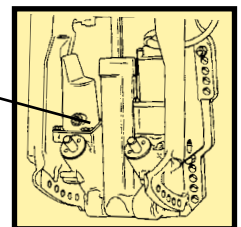
Replaces this square motor



TR279
 Repair kit



AFT FILL RESERVOIR



CHARGING SYSTEMS

NOTE: ALTERNATORS ARE NOT BATTERY CHARGERS



* ENGINE HORSEPOWER REQUIRED FOR ALTERNATORS

For every 23 AMPS of alternator output about one horsepower is required.

FOR EXAMPLE: A 12 volt, 115 AMP alternator requires 5 horsepower.

(115 divided by 23 = 5 horsepower). A 24 volt unit requires twice the horsepower.



* ALTERNATORS ARE NOT BATTERY CHARGERS

Alternators are designed to supply current for the accessory load and maintain the charge of the battery. **Most alternators can safely charge at only two-thirds of their maximum rated output.** When trying to recharge a dead battery, the alternator will charge at maximum output for extended periods of time causing the alternator to overheat. **High heat destroys** transistors, diodes and windings.



* ONE-WIRE ALTERNATORS CAN NOT BE USED WITH BATTERY ISOLATORS

One-wire alternators, sometimes referred to as self-exciting alternators, require battery voltage at the output terminal in order to charge. Since battery isolators eliminate the battery voltage to the alternator, you must use a battery isolator with an ignition excite capability or modifications must be made to the alternator to allow ignition excitation.



* ALTERNATORS MUST TURN THE PROPER RPM IN ORDER TO FUNCTION

Just because the alternator looks like it's turning, doesn't mean it's turning fast enough to charge. **Most alternators do not start charging until they reach 1,000 RPM** alternator shaft speed. 5,000 RPM alternator shaft speed is normally required to reach maximum output. If you're not sure what the alternator shaft speed is, you can determine this with the pulley ratio. Measure the diameter of the crank shaft or drive pulley and the alternator pulley. Divide the crank shaft pulley diameter by the alternator pulley diameter. This figure would be the engine-to-alternator RPM ratio. A normal ratio would be 2.5 to 1. For example, let's say we have a 7 inch diameter crank shaft pulley and a 2.75 inch alternator pulley. We would divide 7 inches by 2.75 which equals 2.54 to 1. If the engine was turning 1,000 RPM we would multiply 1,000 by 2.54 which would give us 2,540 alternator RPM.

Again, with today's high amperage alternators, belt condition and tension are critical in proper alternator performance.

Alternator Pulley



Crankshaft Pulley

IF YOU ARE ABLE TO TURN THE ALTERNATOR FAN BY HAND, YOU DO NOT HAVE THE BELT TIGHT ENOUGH.



* ALTERNATORS WILL CHARGE WHEN TURNING IN EITHER DIRECTION

* NEVER DISCONNECT THE BATTERY CABLE WHEN THE ALTERNATOR IS CHARGING

A common practice with the old generator system was to disconnect the battery cable while the engine was running to see if the generator was working. If this procedure is done on today's transistorized alternator systems, severe damage to the internal components of the alternator usually will be the end result. **This includes using a battery selector switch while the engine is running.**



ALTERNATORS APPROVED FOR MARINE USE

Alternators that are being installed on inboard gasoline engines must be certified to meet Coast Guard requirements for ignition protection. In order for the alternator to be certified, it must pass the testing procedure, Marine SAE J1171, laid-out by the Society of Automotive Engineers (SAE).

Brushes inside the alternator cause some sparking when the alternator is charging. This is normal for any alternator. When the alternator is exposed to a flammable atmosphere, such as an enclosed engine compartment on an inboard gasoline application with a fuel leak, the sparking from the brushes in the alternator may cause an explosion.

The Marine SAE J1171 testing procedure is as follows: A sparking device, similar to a spark plug, is installed in the brush area of the alternator. Another device is also installed in the brush area of the alternator to supply a specified mixture of propane gas and oxygen. The alternator is then placed in an explosion proof test chamber. The chamber and the alternator are then filled with the explosive gas mixture. A high-voltage coil supplies current to the sparking device in the brush area of the alternator, causing an explosion. An explosion must not occur in the test chamber while this test is being performed. This step is repeated nine times. Finally, a spark is supplied inside the test chamber causing an explosion to ensure that the explosive mixture was present during the testing operations.

VARIOUS MARINE APPROVED ALTERNATOR DESIGNS

Motorola Style



Brush Cover Installed

Brush Cover Removed

Prestolite Style



Brush Cover Installed

Brush Cover Removed

Delco Style



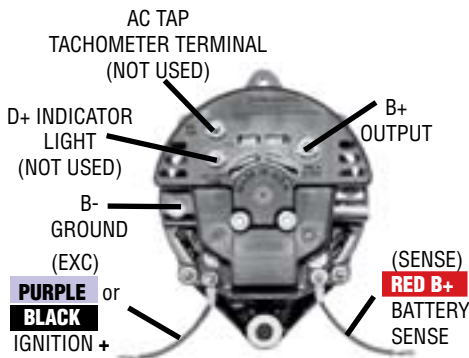
Stainless steel 3-ply screens

Delco style alternators use flame arrestors instead of sealed brush compartments.

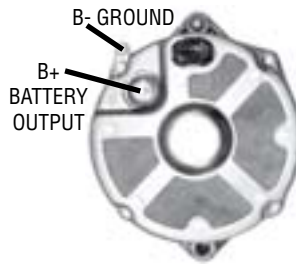
ALTERNATOR CIRCUITS

Many alternators require ignition voltage to initiate charging. You must verify that all required connections are connected to the proper terminal and have the correct voltage in order for the alternator to operate properly. Below you will find the most common alternator circuits used on marine applications.

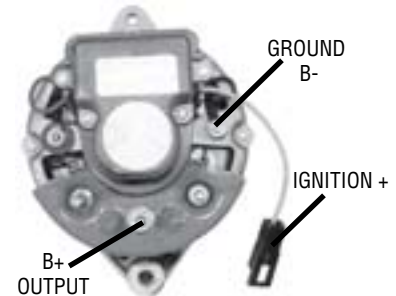
COMMON MARINE ALTERNATOR CIRCUITS



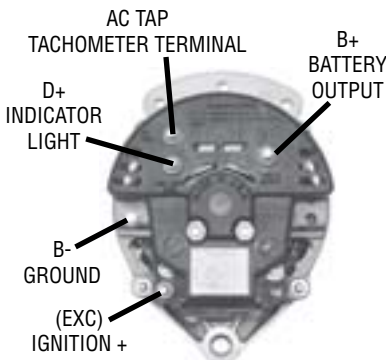
**LATE MOTOROLA/PRESTOLITE STYLE
FITS MERCUISER & OMC**



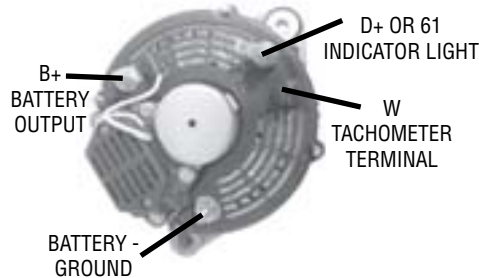
**DELCO SELF EXCITING STYLE
FITS MERCUISER AND OMC**



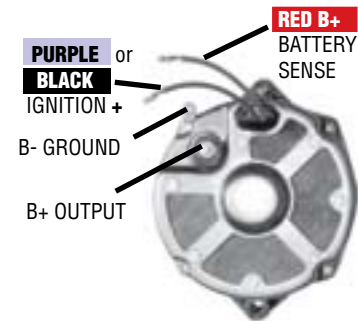
**EARLY MOTOROLA STYLE
FITS WESTERBEKE AND OTHERS**



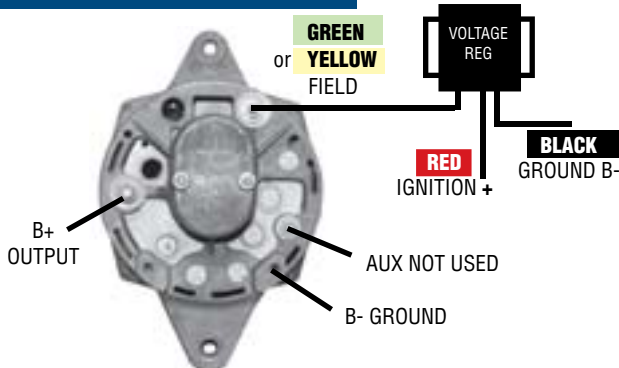
**LATE MOTOROLA/PRESTOLITE STYLE
FITS U.S. MARINE**



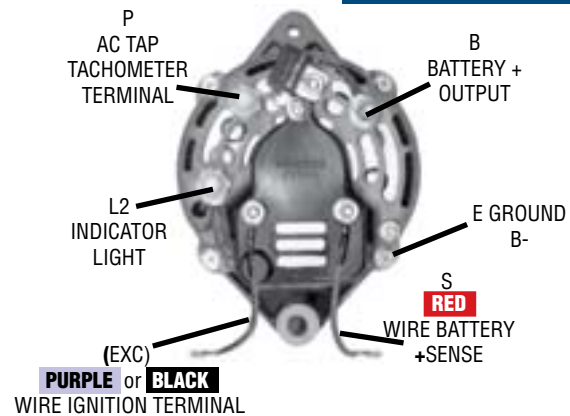
**VALEO/PARIS RHONE
FITS VOLVO PENTA**



**DELCO STYLE
FITS MERCUISER & OMC**



**EARLY PRESTOLITE STYLE
FITS OMC**



**LATE MANDO STYLE
FITS MERCUISER AND OTHERS**



REPLACEMENT INBOARD ALTERNATORS

20100

FITS: MANY DIESEL ENGINES

12 Volt, 70 AMP

Self exciting internal regulator

Negative ground

1-wire connection

2-inch mounting foot

Single groove pulley included



For high-amp (12 Volt, 105 Amp) replacement alternator, see [60122](#) on Page 52.

20102

FITS: MERCUISER, O.M.C.

12 Volt, 70 AMP

Self exciting

Ignition protection screens

Internal regulator

Negative ground

1-wire connection

2-inch mounting foot

Single groove pulley included



For high-amp (12 Volt, 105 Amp) replacement alternator, see [60122](#) on Page 52.

20104

FITS: MERCUISER, O.M.C.

12 Volt, 70 AMP

Ignition protection screens

Internal regulator

Negative ground

2-wire plug

2-inch mounting foot

Single groove pulley included



For high-amp (12 Volt, 105 Amp) replacement alternator, see [60122](#) on Page 52.

20500

Universal-mount alternator

12 Volt, 70 AMP

Self exciting

Ignition protection screens

1-wire connection

Single groove pulley included

1-inch mounting foot

For Gasoline Engines Only

Not For Use On Diesel

Engines



20800 (NEW)

FITS: MERCUISER

4.3L - 8.2L

1998-Up

12 Volt, 70 AMP

Internal Fan

65-mm multi-groove

serpentine pulley

included



20810 (NEW)

FITS: MERCUISER 3.0L

1999-UP

12 Volt, 70 AMP

Internal Fan

Single groove

pulley included



20815 (NEW)

FITS: MERCUISER 4.3L-6.2L

12 Volt, 70 AMP

Internal Fan

50-mm multi-groove

serpentine pulley

included



20820 (NEW)

FITS: INDMAR,

PLEASURECRAFT,

CRUSADER, AND OTHERS

12 Volt, 70 AMP

Internal Fan

2-inch mounting foot

65-mm multi-groove

serpentine pulley

included



REPLACEMENT INBOARD ALTERNATORS



20821 (NEW)
FITS: PLEASURECRAFT &
MARINE POWER
12 Volt, 70 AMP
Internal Fan
2-inch mounting foot
50-mm serpentine
pulley included



20827 (NEW)
HIGH AMP
FITS: INDMAR
12 Volt, 95 AMP
Internal Fan
2-inch mounting foot
65-mm serpentine
pulley included



20822 (NEW)
FITS: PLEASURECRAFT
12 Volt, 70 AMP
Internal Fan
2-inch mounting foot
65-mm serpentine
pulley included



20828 (NEW)
HIGH AMP
FITS: MARINE POWER
12 Volt, 95 AMP
Internal Fan
2-inch mounting foot
Double pulley included



20825 (NEW)
FITS: INDMAR,
PLEASURECRAFT,
CRUSADER, AND OTHERS
12 Volt, 70 AMP
Internal Fan
2-inch mounting foot
Single groove
pulley included



20830 (NEW)
FITS: MARINE POWER
12 Volt, 70 AMP
Internal Fan
2-inch mounting foot
Double pulley included
Includes wire/plug
connector



20826 (NEW)
HIGH AMP
FITS: PLEASURECRAFT
12 Volt, 95 AMP
Internal Fan
2-inch mounting foot
65-mm serpentine
pulley included



20840 (NEW)
FITS: 2.5L
MERCURY OUTBOARD
12 Volt, 50 AMP
Internal Fan
2-inch mounting foot
Multi-groove
serpentine
pulley included
Includes wire/plug
connector





REPLACEMENT INBOARD ALTERNATORS

20850 (NEW)

**FITS: 1.5L & 3.0L
MERCURY OUTBOARD
12 Volt, 50 AMP**
Internal Fan
Multi-groove serpentine
pulley included
Includes wire/plug
connector



***Will not replace
Mercury # 821663A-1**

40115 (NEW)

**FITS: CHRIS CRAFT
12 Volt, 55 AMP**
Negative ground
1-inch mounting foot
Single groove
pulley included



VR407

**Replacement Regulator
for Prestolite alternator
Not required for ARCO
replacement alternator.**



Replaces this
◀ style unit

20860 (NEW)

**FITS: All Mercury
Verado Outboards
12 Volt, 70 AMP**
Internal Fan
Multi-groove
serpentine
pulley included



40147 (NEW)

**FITS: PLEASURECRAFT, WAUKESHA
12 Volt, 55 AMP**
Negative ground
2-inch mounting foot
Single groove
pulley included



VR406

**Replacement Regulator
for Prestolite alternator
Not required for ARCO
replacement alternator.**



Replaces this
◀ style unit

40112

**FITS: CHRYSLER MARINE
12 Volt, 70 AMP**
Internal regulator
Negative ground
Single groove
pulley included



VR405

**Replacement Regulator
for Prestolite alternator
Not required for ARCO
replacement alternator.**



Replaces this
◀ style unit

40152

**FITS: O.M.C.
12 Volt, 70 AMP**
Internal regulator
Negative ground
Single groove
pulley included



VR404

**Replacement Regulator
for Prestolite alternator
Not required for ARCO
replacement alternator.**



Replaces this
◀ style unit

REPLACEMENT INBOARD ALTERNATORS



60050 (NEW)

MANDO
FITS: LATE MODEL
MERCUISER
12 Volt, 55 AMP
Internal regulator
2-inch mounting foot
Single groove
pulley included



M883

Replacement Regulator

65050 (NEW)

75 Amp high-output
also available

60065 (NEW)

MANDO
FITS: LATE MODEL
MERCUISER
12 Volt, 65 AMP
Internal regulator
2-inch mounting foot
Single groove
pulley included



65050 (NEW)

75 Amp high-output
also available

60055 (NEW)

MANDO
FITS: LATE MODEL
MERCUISER
12 Volt, 55 AMP
Internal regulator
2-inch mounting foot
Multi-groove serpentine
pulley included



M883

Replacement Regulator

65055 (NEW)

75 Amp high-output also available

60070 (NEW)

MANDO
FITS: LATE MODEL
VOLVO PENTA
12 Volt, 65 AMP
Internal Regulator
2-inch mounting foot
Single groove
pulley included



60071 (NEW)

MANDO
FITS: LATE MODEL
VOLVO PENTA
12 Volt, 65 AMP
Internal Regulator
2-inch mounting foot
Multi-groove serpentine
pulley included



60060 (NEW)

MANDO
FITS: LATE MODEL
MERCUISER
12 Volt, 65 AMP
Internal Regulator
2-inch mounting foot
Multi-groove serpentine
pulley included



65055 (NEW)

75 Amp high-output
also available

60072 (NEW)

MANDO
FITS: LATE MODEL
VOLVO PENTA
12 Volt, 65 AMP
Multi-groove
serpentine
pulley included

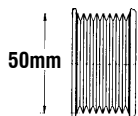




REPLACEMENT INBOARD ALTERNATORS

60073 (NEW)

VOLVO PENTA
FITS: LATE MODEL VOLVO PENTA
12 Volt, 75 AMP
50-mm multi-groove
serpentine pulley included



60074 (NEW)

VOLVO PENTA
FITS: LATE MODEL
VOLVO PENTA
12 Volt, 75 AMP
2-inch mounting foot
Single groove
pulley included



60075 (NEW)

UNIVERSAL ALTERNATOR W/ MANY APPLICATIONS
FITS: YAMAHA, MARINE POWER, CRUSADER

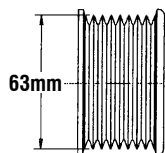
Replaces Motorola
12 Volt, 55 AMP
Internal regulator Includes:
Tachometer terminal, indicator
light terminal, remote battery
sensing terminal, excite terminal
1-inch mounting foot
with 3-ear adjustment
Single groove pulley included



M883
Replacement Regulator

60076 (NEW)

VOLVO PENTA
FITS: LATE MODEL VOLVO PENTA
12 Volt, 75 AMP
63-mm multi-groove
serpentine pulley included



60104 (NEW)

REPLACES: MOTOROLA
12 Volt, 55 AMP
Internal regulator
Negative ground
1-inch mounting foot
Single groove
pulley included



Replaces this
◀ style unit



60108 (NEW)

FITS: UNIVERSAL AND OTHERS
12 Volt, 55 AMP
Internal regulator
Negative ground
2-inch mounting foot
Single groove
pulley included



65108 (NEW)

75 Amp high-output
also available



Replaces this
◀ style unit

60125 (NEW)

FITS: O.M.C. COBRA
Replaces: Prestolite/Motorola
12 Volt, 55 AMP
Internal regulator
Negative ground
2-inch mounting foot
Single groove
pulley included



Replaces this
◀ style unit



REPLACEMENT INBOARD ALTERNATORS



12 VOLT, 105 AMP - HIGH AMP ALTERNATORS

Today's increased electrical loads and more sophisticated electronics demand improved performance, greater reliability, and higher output from the electrical generating system. ARCO's creative engineering offers a **105 AMP** series as the means to a totally efficient electrical system. For comparison, just look at the Performance Chart at the bottom of the page!

60121 (NEW)
HIGH-AMP
12 Volt, 105 AMP
Self exciting
integral regulator
Isolated ground
Includes: Tachometer
terminal. External
voltage adjustment.
1-inch mounting foot,
1/2" hole
Single groove
pulley included



60126 (NEW)
HIGH-AMP
FITS: Late Model VOLVO PENTA
w/warning panel connection
12 Volt, 105 AMP
Integral regulator
Isolated ground
Includes: Tachometer terminal
2-inch mounting foot,
10mm hole
Single groove
pulley included



For applications WITHOUT warning panel connection, use **60124**

60122 (NEW)
HIGH-AMP
12 Volt, 105 AMP
Self exciting integral
regulator. Isolated
ground. Includes:
Tachometer terminal.
External voltage
adjustment.
2-inch mounting foot,
3/8" hole
Single groove pulley included



60498 (NEW)
HIGH-AMP
FITS: CATERPILLAR
DIESEL 6T1396
12 Volt, 105 AMP
Integral regulator
Isolated ground
Heavy duty bearings
1-inch mounting foot
PULLEY NOT INCLUDED

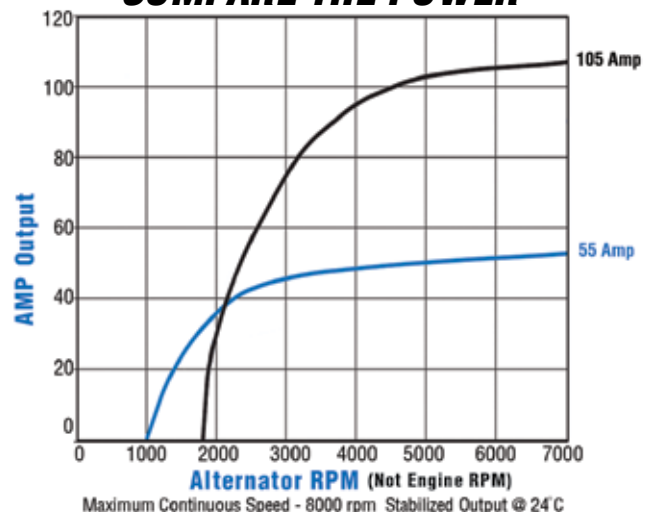


60124 (NEW)
HIGH-AMP
FITS: VOLVO PENTA
12 Volt, 105 AMP
Self exciting
integral regulator
Isolated ground
Includes: Tachometer
terminal
External voltage
adjustment
2-inch mounting foot,
10mm hole
Single groove pulley included



For applications WITH warning panel connection, use **60126**

COMPARE THE POWER





REPLACEMENT INBOARD ALTERNATORS

60150 (NEW)

Prestolite/Motorola
24 Volt, 75 AMP
Integral regulator
Isolated ground
7" casing
PULLEY NOT INCLUDED



To be discontinued
when present stock
is exhausted

60180 (NEW)

Prestolite/Motorola
32 Volt, 100 AMP
Integral regulator
Isolated ground
7" casing
PULLEY NOT INCLUDED



To be discontinued
when present stock
is exhausted

60160 (NEW)

Prestolite/Motorola
12 Volt, 160 AMP
Integral regulator
Isolated ground
7" casing
PULLEY NOT INCLUDED



To be discontinued
when present stock
is exhausted

60195 (NEW)

Prestolite/Motorola
FITS: CUMMINS DIESEL
12 Volt, 65 AMP
Integral regulator
2-inch mounting foot
PULLEY NOT INCLUDED
Poly-V pulley
available separately



To be discontinued
when present stock
is exhausted

60170 (NEW)

Prestolite/Motorola
24 Volt, 175 AMP
Integral regulator
Isolated ground
7" casing
PULLEY NOT INCLUDED



To be discontinued
when present stock
is exhausted

60197 (NEW)

FITS: CATERPILLAR
DIESEL 6T1395
24 Volt, 35 AMP
Integral regulator. Isolated
ground. Heavy duty bearings
1-inch mounting foot
PULLEY NOT INCLUDED



To be discontinued
when present stock
is exhausted

60175 (NEW)

Prestolite/Motorola
24 Volt, 100 AMP
Integral regulator
Isolated ground
7" casing
PULLEY NOT INCLUDED



To be discontinued
when present stock
is exhausted

60198 (NEW)

FITS: CATERPILLAR DIESEL 6T1396
12 Volt, 51 AMP
Integral Regulator
Isolated ground
Heavy duty bearings
1-inch mounting foot
PULLEY NOT INCLUDED



For high-amp
(12 Volt, 105 Amp)
replacement alternator
see **60498** on Page 52.

REPLACEMENT INBOARD ALTERNATORS



80108 (NEW)
FITS: LATE MODEL VOLVO PENTA
DIESEL ENGINES
12 Volt, 55 AMP
Internal regulator
2-inch mounting foot
PULLEY NOT INCLUDED



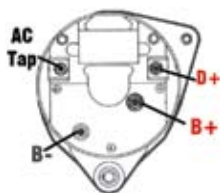
For high-amp
(12 Volt, 105 Amp)
replacement alternator
see **60124/60126**
on Page 52.

80200 (NEW)
PARIS RHONE/VALEO
FITS: BAUDOIN, BUKH,
VOLVO PENTA
DIESEL ENGINES
24 Volt, 30 AMP
Integral regulator
2-inch mounting foot
PULLEY NOT INCLUDED



To be discontinued when present
stock is exhausted.

83160 (NEW)
FITS: LEHMAN, PERKINS, ETC.
12 Volt, 75 AMP
with regulator
Single groove
pulley included



To be discontinued when present
stock is exhausted.

84135
HITACHI MARINE
FITS: YANMAR DIESEL
12 Volt, 35 AMP
Internal regulator
Single groove
pulley included



84150
HITACHI MARINE
FITS: YANMAR DIESEL
12 Volt, 50 AMP
Internal regulator
Single groove
pulley included



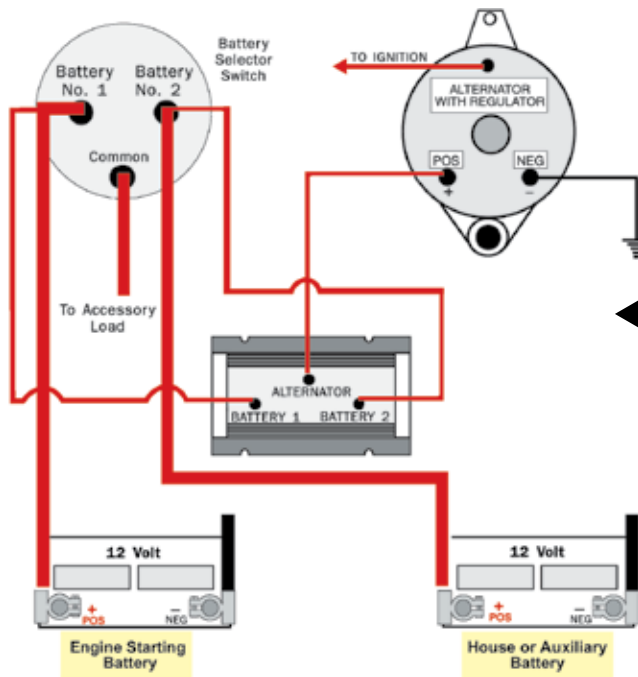
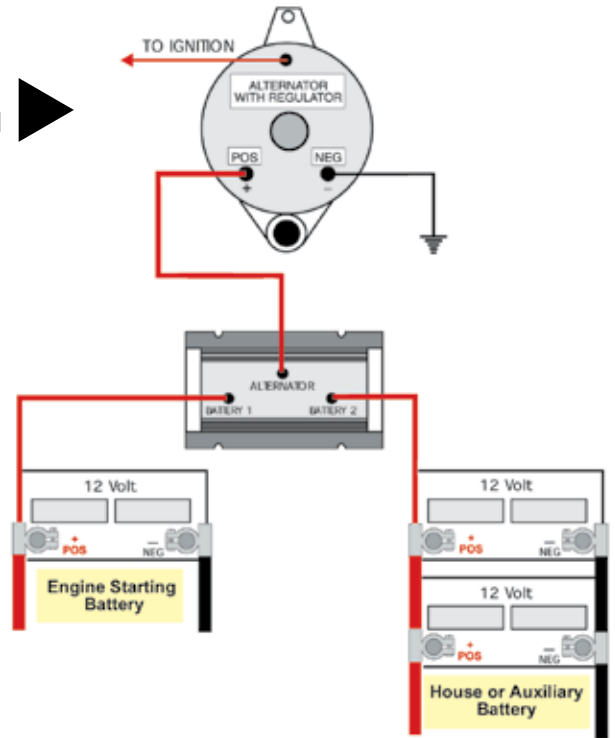
86050
FITS: WESTERBEKE
DIESEL ENGINES
12 Volt, 50 AMP
Internal regulator
Single groove
pulley included



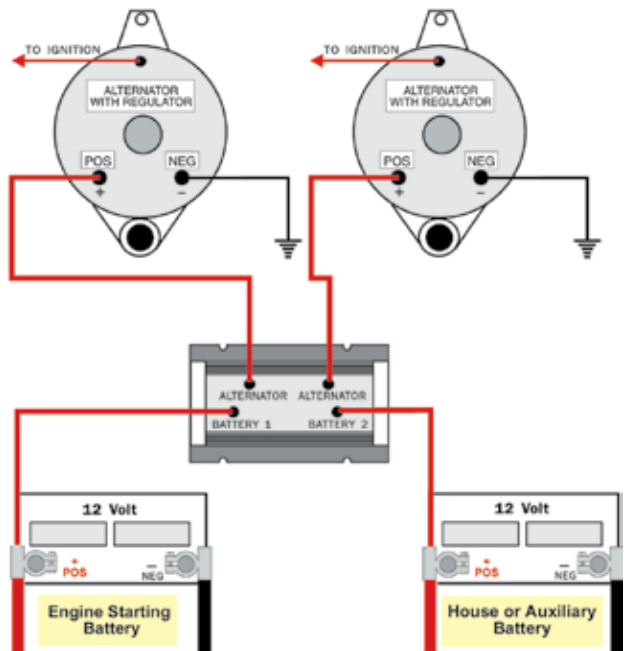
TYPICAL BATTERY ISOLATOR CIRCUITS

The most common battery isolator is the one alternator, two battery unit. It doesn't matter how many batteries are connected in parallel to the battery 1 or 2 terminal.

Remember, when batteries are connected in parallel, they become one large battery.



The one alternator, two battery isolator with a battery selector switch will allow both banks of batteries to be charged regardless of what position the battery selector switch is in.



The two alternator, two battery isolator allows both alternators to charge both batteries.

In the event of one alternator failure, both batteries would be maintained by the working alternator.

INBOARD/OUTBOARD BATTERY ISOLATORS



Battery isolators are solid-state devices which allow electrical current to flow in one direction only, thus permitting the alternator to be connected directly to two batteries without fear of one higher charged battery discharging into the lower charged battery. Both batteries are always being charged automatically, in proportion, to their needs, whenever the engine is running. When battery isolators are used in conjunction with selector switches, it is not necessary to change the switch position to provide for charging of both batteries. Isolators provide proportioning of the output or charging current on the alternator to the batteries as required, regardless of switch position. Rated for use with 10 to 350 amp alternators on 12, 24, or 32 volt negative ground systems.

Note Battery Isolators cannot be used on 12 volt charging systems with 24 volt trolling motors or newer outboard engines with rectifier-regulator charging systems.

BI-0702

1 Alternator, 2 Batteries
70 AMP max



BI-1202-3A

1 Alternator,
2 Batteries
120 AMP max
Includes: Exciter Terminal



BI-0702-4

1 Alternator, 2 Batteries
70 AMP max
Includes: Regulator
sensing terminal



BI-1203

1 Alternator,
3 Batteries
120 AMP max



BI-0703

1 Alternator, 3 Batteries
70 AMP max



BI-1203-3A

1 Alternator,
3 Batteries
120 AMP max
Includes Exciter Terminal



BI-1202

1 Alternator,
2 Batteries
120 AMP max



BI-1602

1 Alternator,
2 Batteries
160 AMP max





INBOARD/OUTBOARD BATTERY ISOLATORS

Note Battery Isolators cannot be used on 12 volt charging systems with 24 volt trolling motors or newer outboard engines with rectifier-regulator charging systems.

BI-1603

1 Alternator,
3 Batteries
160 AMP max



BI-2703-4

2 Alternators,
3 Batteries
70 AMP max
Includes: Regulator
sensing terminal



BI-2402

1 Alternator,
2 Batteries
240 AMP max



**To be discontinued
when present stock
is exhausted.**

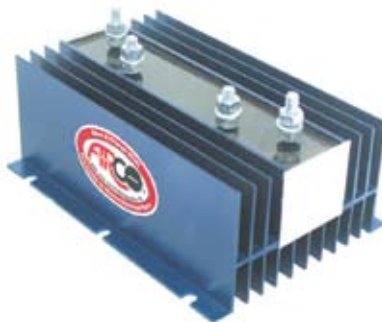
BI-3202

2 Alternators,
2 Batteries
120 AMP max



BI-2702

2 Alternators,
2 Batteries
70 AMP max



BI-3203

2 Alternators,
3 Batteries
120 AMP max



BI-2703

2 Alternators,
3 Batteries
70 AMP max



WIRING

Wiring is just as important as any other component in the starting and charging system. It must be capable of delivering the amount of current that the load is demanding.

When electrical systems are designed, the wire size is calculated for the specific requirements of the electrical components being used. **When electrical components are added or upgraded, the wire size has to be upgraded also. For example, replacing a low torque starter with a high torque starter will normally require the battery cables and possibly the battery to be upgraded.**
WHEN IN DOUBT, ALWAYS USE A BIGGER WIRE.

A word about wire gauge

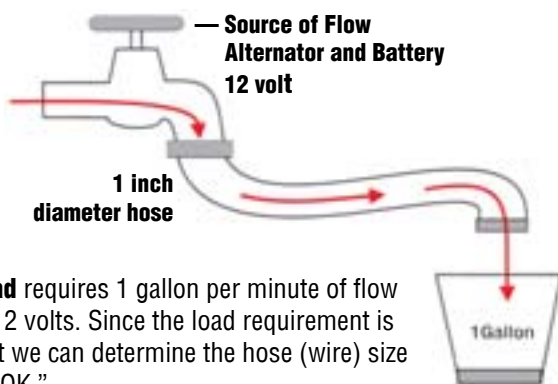
The size of a wire (gauge) is expressed in terms of a standard American Wire Gauge (AWG) measurement.

The higher the AWG number, the smaller the wire. For example, a 14 gauge wire is smaller than a 10 gauge wire. The smaller the wire, the greater its resistance to the flow of electrons and the greater the heat generated when the wire is conducting electricity. The heat can destroy insulation and even kindle a fire. **THE LARGER THE AMPERAGE OF A CIRCUIT, THE LARGER THE WIRE THAT IS NEEDED.**

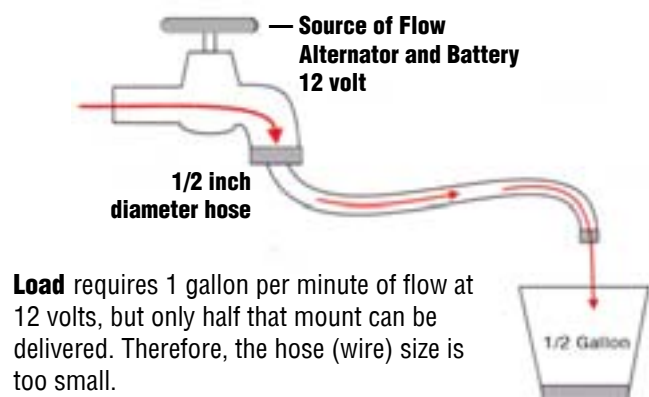
Think of wiring as a water hose.

The electrical current is like water flowing through the hose. The source or supply of this water would be the battery and alternator. Look at the diagrams below. The first diagram shows a one inch diameter hose which allows one gallon per minute of flow. Since the load requires only a gallon per minute of flow, we can say that this hose (wire size) is of sufficient size to carry the supply of water (current) to the load. This all changes when we reduce the water hose (wire size) to one half inch as shown in the second diagram. The hose (wire) can only deliver half the current needed by the load— this hose (wire) is NOT of sufficient size to carry the needed supply of water (current) to the load.

Adequate Wire Size (gauge)



Inadequate Wire Size (gauge)



BIGGER (LARGER) IS BETTER!

The higher the AWG Number, the smaller the wire.

The larger the amperage of a circuit, the larger the wire that is needed.

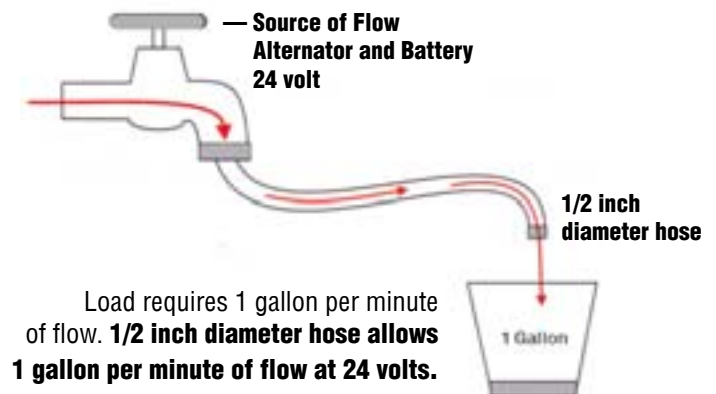
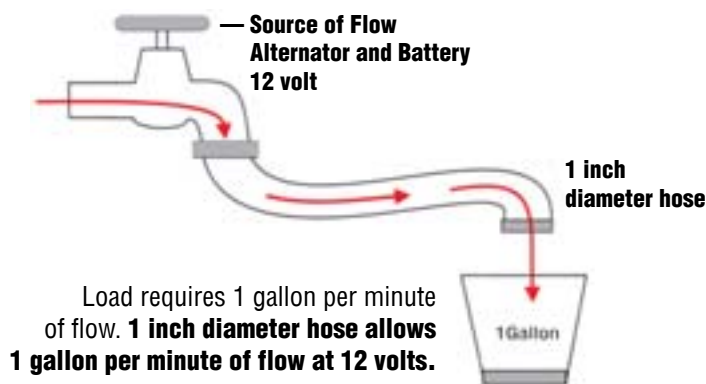
WIRING AND VOLTAGE

VOLTAGE IS MUCH LIKE WATER PRESSURE.

When calculating proper wire sizing, voltage plays a very important role. Voltage is much like water pressure. The higher the voltage, the faster the current flows.

A 24 volt system can move the same amount of current through a wire one half the size required for a 12 volt system.

This is also shown in the charging cable size chart on the following page. Notice that the 24 volt cable size requirements are much less than that of the 12 volt.



The higher the voltage, the faster the current flows.



RECOMMENDED WIRE SIZES

Below you will find the recommended wire sizes for charging and starting systems. **IT IS VERY IMPORTANT TO INCLUDE THE GROUND CABLE WHEN CALCULATING THE TOTAL LENGTH OF THE SYSTEM.**

The ground cable must carry the same amount of current as the positive cable.

WHEN IN DOUBT - - - BIGGER IS BETTER!

MINIMUM CHARGING CABLE GAUGE SIZE

		TOTAL LENGTH INCLUDING GROUND CABLE							
TYPE OF SYSTEM	OUTPUT IN AMPERES	UP TO 4 FT.	4 FT. TO 7 FT.	7 FT. TO 10 FT.	10 FT. TO 13 FT.	13 FT. TO 16 FT.	16 FT. TO 19 FT.	19 FT. TO 22 FT.	22 FT. TO 28 FT.
12 VOLT	0-20 AMPS	14 GA.	12 GA.	12 GA.	10 GA.	10 GA.	8 GA.	8 GA.	8 GA.
	20-35 AMPS	12 GA.	10 GA.	8 GA.	8 GA.	6 GA.	6 GA.	6 GA.	4 GA.
	35-50 AMPS	10 GA.	8 GA.	8 GA.	6 GA.	6 GA.	4 GA.	4 GA.	4 GA.
	50-65 AMPS	8 GA.	8 GA.	6 GA.	4 GA.	4 GA.	4 GA.	4 GA.	4 GA.
	65-85 AMPS	6 GA.	6 GA.	4 GA.	4 GA.	2 GA.	2 GA.	2 GA.	0 GA.
	85-105 AMPS	6 GA.	6 GA.	4 GA.	2 GA.	2 GA.	2 GA.	2 GA.	0 GA.
	105-125 AMPS	4 GA.	4 GA.	4 GA.	2 GA.	2 GA.	0 GA.	0 GA.	0 GA.
	125-150 AMPS	2 GA.	2 GA.	2 GA.	2 GA.	0 GA.	0 GA.	0 GA.	00 GA.
24 VOLT	0-20 AMPS	14 GA.	14 GA.	14 GA.	12 GA.	12 GA.	12 GA.	10 GA.	10 GA.
	20-35 AMPS	12 GA.	12 GA.	12 GA.	10 GA.	10 GA.	8 GA.	8 GA.	8 GA.
	35-50 AMPS	10 GA.	10 GA.	10 GA.	10 GA.	6 GA.	6 GA.	6 GA.	6 GA.
	50-65 AMPS	8 GA.	8 GA.	8 GA.	8 GA.	6 GA.	4 GA.	4 GA.	4 GA.
	65-85 AMPS	6 GA.	6 GA.	6 GA.	6 GA.	6 GA.	6 GA.	4 GA.	4 GA.
	85-105 AMPS	6 GA.	6 GA.	6 GA.	6 GA.	4 GA.	4 GA.	4 GA.	2 GA.
	105-125 AMPS	4 GA.	4 GA.	4 GA.	4 GA.	4 GA.	4 GA.	2 GA.	2 GA.
	125-150 AMPS	2 GA.	2 GA.	2 GA.	2 GA.	2 GA.	2 GA.	2 GA.	2 GA.

MINIMUM STARTING CABLE GAUGE SIZE FOR MOST INBOARD GASOLINE ENGINE APPLICATIONS

4 - 6 - 8 Cylinder Gasoline Engine							
Total Cranking Circuit Length in Inches	UP TO 75"	75" - 125"	125"-175"	175"-225"	225"-275"	275"-325"	325"-425"
Minimum Battery Cable Size	4	2	1	0	2/0	3/0	4/0



SOLENOID TYPES AND CIRCUITS

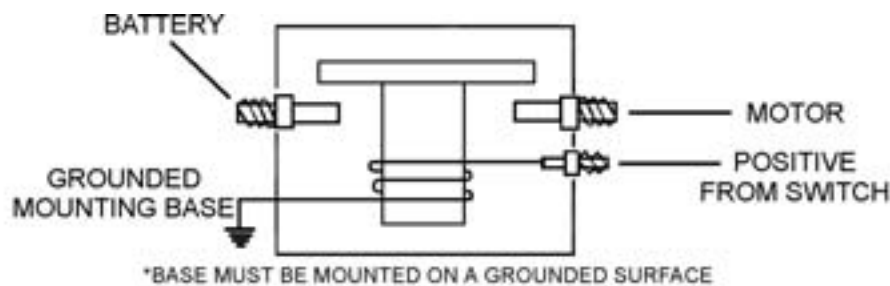


Many of the remote mount solenoids look identical on the outside.

However, they can be very different on the inside. Beside the different internal circuits, these can be rated for continuous duty or intermittent duty use.

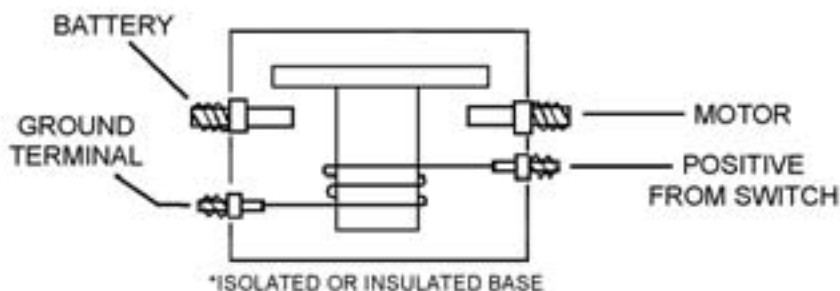
Continuous duty solenoids are wound with very fine wire and draw very little amperage. The contacts in continuous duty solenoids will usually have a lower amperage rating than that of the intermittent duty type. These are normally used as tilt trim relays. This type of solenoid can also be used for a variety of applications where a remote relay is needed to power a motor or other device.

Intermittent duty solenoids are wound with much heavier wire and draw more amperage. The contacts have a very high amperage rating. If these stay energized for extended periods of time they heat up and eventually burn out the coil inside the solenoid. This type of solenoid is normally used as a starter motor relay.



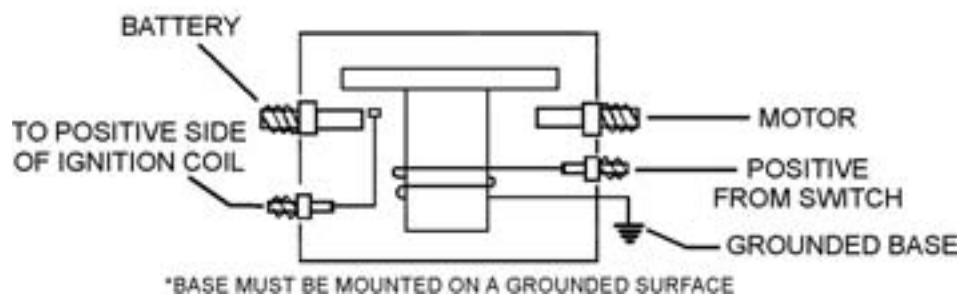
GROUNDING BASE SOLENOIDS

One end of the coil is grounded to the mounting base. This type solenoid must mount on a grounded surface or a ground must be attached to the base.



INSULATED BASE SOLENOIDS

Both ends of the coil in this unit are insulated. A separate ground must be connected and this type of solenoid can be mounted on any surface.

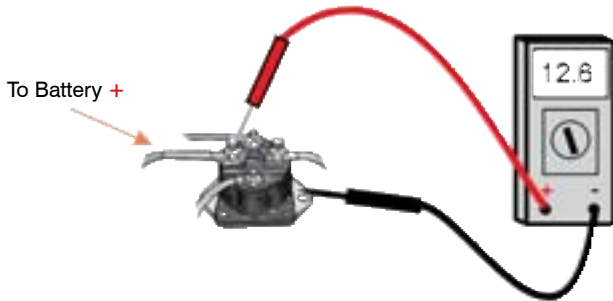


SOLENOIDS EQUIPPED WITH RELAY TERMINAL

This type of solenoid is normally used for starting motors. Since conventional ignition coils operate on 7 volts, the relay terminal supplies 12 volts to the ignition coil during starting for easier starts. The base of this solenoid must be grounded.

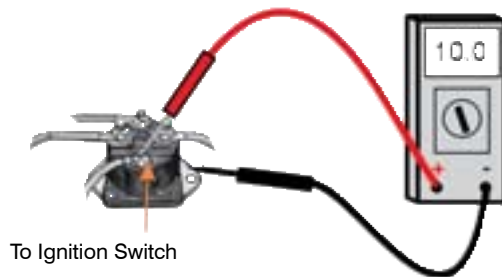
SIMPLE SOLENOID TESTING: GROUNDED BASE REMOTE SOLENOIDS

NOTE: Before Performing These Tests You Must Fully Charge and Load Test The Battery to Verify It Is Good.

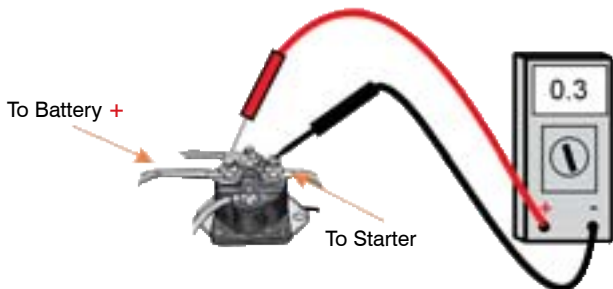


Step 1: Check the voltage on the battery side of the solenoid as shown on the left. The reading should be the same as the battery reading (12.6V = Full Charged Battery).

Step 2: With the voltmeter still connected, turn the key to the start position and read the voltage. The voltage should not drop below 10.0 volts on this terminal. If the voltage drops below 10.0 volts, The battery cable should be cleaned or replaced. If the reading is 10.0 volts or more move on to step 3.



Step 3: Keep the negative voltmeter lead on the metal base of the solenoid and move the positive voltmeter lead to the terminal marked "S" on the solenoid. Turn the key to the start position and read the voltage. The Voltage could read a little lower than the previous reading but should never be below 10.0 volts. If the voltage is lower than 10.0 volts, You must troubleshoot the start circuit (ignition switch, voltage supply to the ignition switch, neutral safety switch).



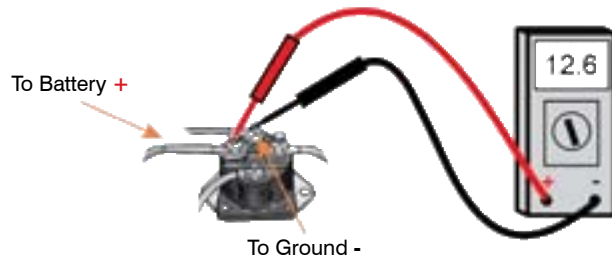
Step 4: Move the positive voltmeter lead to the battery terminal on the solenoid and the negative voltmeter lead to the terminal that the starter cable is attached. Turn the key to the start position and read the voltage. The voltage should read no more than .3 volts. If the reading is more than .3 volts the contacts have excessive resistance and the solenoid should be replaced.



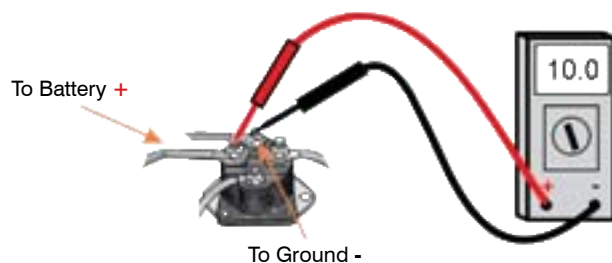
Step 5: Some solenoids use a relay terminal on the solenoid to power fuel pumps or supply full battery voltage to ignition coils when the starter is activated. This terminal is usually marked "I" or "R". Connect the voltmeter as shown. Turn the key to the start position. You should read no more than 0.3 volts. If you have more than 0.3 volts the solenoid should be replaced.

SIMPLE SOLENOID TESTING: INSULATED BASE REMOTE SOLENOIDS

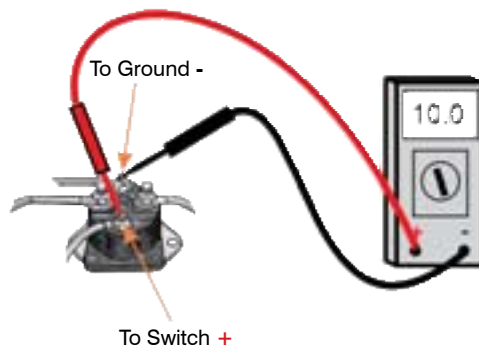
NOTE: Before Performing These Tests You Must Fully Charge and Load Test The Battery to Verify It Is Good.



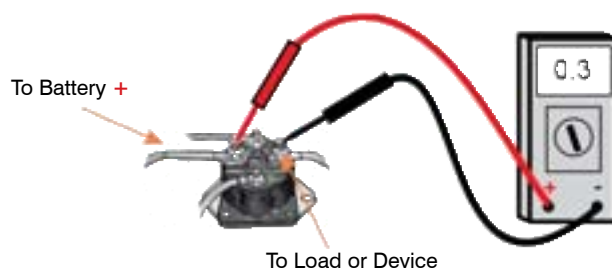
Step 1: Check the voltage on the battery side of the solenoid as shown on the left. The reading should be the same as the battery reading (12.6V = Full Charged Battery).



Step 2: With the voltmeter still connected, activate the switch and read the voltage. The voltage should not drop below 10.0 volts on this terminal. If the voltage drops below 10.0 volts, the battery cable should be cleaned or replaced. If the reading is 10.0 volts or more move on to step 3.



Step 3: Keep the negative voltmeter lead on the ground terminal of the solenoid and move the positive voltmeter lead to the terminal marked "S" on the solenoid. Activate the switch and read the voltage. The Voltage could read a little lower than the previous reading but should never be below 10.0 volts. If the voltage is lower than 10.0 volts, you must troubleshoot the switch circuit (toggle switch, push button switch, or voltage supply to these switches).



Step 4: Move the positive voltmeter lead to the battery terminal on the solenoid and the negative voltmeter lead to the terminal that the starter cable is attached. Activate the switch and read the voltage. The voltage should read no more than .3 volts. If the reading is more than .3 volts the contacts have excessive resistance and the solenoid be replaced.



SW054

FITS: MERCUISER, MERCURY
Isolated base
12 Volt



SW064

FITS: MERCUISER, MERCURY
Isolated base
12 Volt
White housing



SW058

STANDARD-DUTY
FITS: MERCUISER, MERCURY
Isolated base
12 Volt



SW081

FITS: MANY APPLICATIONS; O.M.C.
Isolated base
12 Volt



SW058HD

HEAVY-DUTY
FITS: MERCUISER, MERCURY
Isolated base
12 Volt



SW097

FITS: MERCUISER, MERCURY
Isolated base
12 Volt
White housing



SW099

FITS: MERCUISER, MERCURY & YAMAHA 4 STROKE
Isolated base
12 Volt



SW109

FITS: MERCURY/FORCE
Isolated base
12 Volt



High Temp Housing
for Less Distortion

Studs are Molded
in the Housing for
More Precise
Contacting

One Piece
Moving Core
with Solid
Brass Stem

Heavy Duty
High Temp
Coil Assembly

Solid Copper
Moving Contact
Covers Stud
Contacts for More
Contact Area





REPLACEMENT SOLENOIDS

SW125

HEAVY-DUTY
FITS: FORD
ARCO 70125, 70200,
70201, 70212, 70216
gear reduction starters
on late model 5.0L, 5.8L



SW225

HEAVY-DUTY
FITS: VOLVO PENTA,
VALEO gear reduction



SW268

FITS: O.M.C.
Grounded base
12 Volt



SW275

FITS: MERCURY
Isolated base
12 Volt



SW288

FITS: O.M.C.
Isolated base
12 Volt



SW295

FITS: CHRYSLER
Isolated base
12 Volt



SW340

FITS: O.M.C.
Isolated base
12 Volt



SW394

FITS: MERCURUISER & O.M.C.
Grounded base
12 Volt



SW450

FITS: ARCO 30460, 30470
4 terminals
12 Volt
Plungers to fit these units
MUST BE ORDERED
SEPARATELY-SEE BELOW



PA450L

2 1/4" Plunger for
ARCO SW450



Fits late model 30470.

PA450S

1 3/4" Plunger for
ARCO SW450



Will also fit early
model 30450 & all 30460.



REPLACEMENT SOLENOIDS



SW456

FITS: 14 MT
ARCO 30456, 30457
4 Post, 3-Bolt Mount



SW463

HEAVY-DUTY
FITS: O.E. DELCO PG 260,
MERCUISER, OMC, VOLVO PENTA
This solenoid will not fit
ARCO 30460, 30470!



SW486

FITS: MANY HITACHI STARTERS
on **YANMAR** diesels
12 Volt



SW565

FITS: VOLVO PENTA
Isolated base
12 Volt



SW580

FITS O.M.C.
1993-UP,
9.9 -15 HP Outboard
Isolated base
12 Volt



SW590

Starter Solenoid
FITS: LATE MODEL
EVINRUDE E-TEC ENGINES
Isolated base



SW595

FITS EVINRUDE E-TEC
2010-UP 15 HP-300 HP



SW622

FITS O.M.C.
Isolated base
12 Volt



SW661

FITS: MERCURY
Isolated base
12 Volt



SW730

FITS: O.M.C.
Grounded base
12 Volt



SW774

FITS: CHRYSLER, O.M.C.
Replaces Chrysler 177917
Grounded base
12 Volt



SW814

**FITS: PARIS RHONE
D11E167T, ETC.**
12 Volt



SW865

**HEAVY-DUTY
12 VOLT, 1000 AMP**
Parallel/solenoid
Isolated ground



SW866

24 VOLT, 1000 AMP

SW924

FITS: FORCE OUTBOARDS
Choke solenoid
Order plunger (below) separately



PA924

Plunger to fit **ARCO** SW924

SW925

FITS: MERCURY OUTBOARDS
Choke solenoid



SW926

**FITS: 75 HP-V200 HP
MERCURY OUTBOARDS**
Choke solenoid



SW941

FITS: YAMAHA
Solenoid



SW945

**FITS: YAMAHA 2 & 4 STROKE,
MERCURY 4 STROKE**
Starter solenoid



SW950

FITS: YAMAHA
Solenoid



SW975

FITS: DELCO
Standard solenoid
12 Volt



SW981

FITS: MERCURY
Grounded base
12 Volt



SW984

FITS: DELCO
Metric solenoid
12 Volt



AR103

FITS: O.M.C.
3-lead Rectifier



OUTBOARD RECTIFIERS & REPLACEMENT RELAYS



AR104

FITS: O.M.C.
4-lead Rectifier



AR351

HEAVY-DUTY
FITS: MERCURY
3-post Rectifier



R012 Continuous duty relay;
12 Volt, 85 Amp



R024 24 Volt, 85 Amp

R036 32-36 Volt, 85 Amp

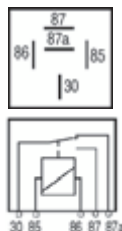
R038

S.P.D.T. normally closed,
continuous duty relay
used w/many winch motors
Isolated ground, 12 Volt, 85 Amp



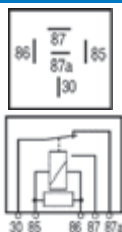
R040

FITS: VOLVO PENTA
12 Volt, 30 Amp



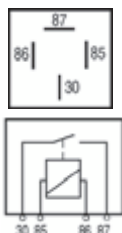
R151

FITS: MERCURY &
MARINER OUTBOARDS
12 Volt, 30 Amp



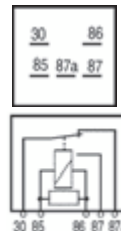
R177

FITS: VOLVO PENTA
12 Volt, 30 Amp



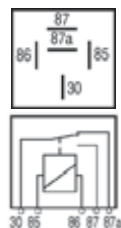
R202

FITS: MERCURISER
12 Volt, 30 Amp



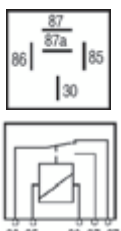
R211

FITS: MERCURY
12 Volt, 30 Amp



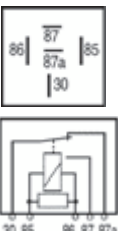
R473

FITS: O.M.C.
12 Volt, 30 Amp



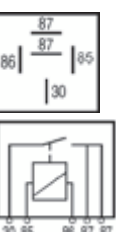
R509

FITS: MERCURY,
MARINER & FORCE,
OUTBOARDS
12 Volt, 30 Amp



R670

FITS: VOLVO PENTA
12 Volt, 30 Amp



R751

FITS: MERCURISER &
MERCURY VERADO
OUTBOARDS
12 Volt, 30 Amp





REPLACEMENT RELAYS & VOLTAGE REGULATORS

R767

EVINRUDE E-TEC

O/B TILT/TRIM RELAY

REPLACES EVINRUDE 0586767

2011-2012 E-TEC 25, 30, 40,
50, 60, 75, 90, 115, 130, 150,
175, 200, 225, 250, 300

2008-2010 E-TEC 30, 40, 50,
60, 75, 90, 115, 130, 150, 175,
200, 225, 250, 300

2007 E-TEC 40, 50, 60, 75, 90,
115, 150, 175, 200, 225, 250

2006 E-TEC 40, 50, 60, 75, 90, 200, 225, 250

2005 E-TEC 40, 50, 75, 90, 200, 225, 250

2004 E-TEC 40, 50, 75, 90



R951

YAMAHA O/B TILT/TRIM RELAY

REPLACES: YAMAHA 6E5 8195A-01

1991 & Up 115 HP,

1991 - 2004 130 HP,

1991 & Up 150 HP,

1991 - 2000 175 HP,

1991 - 1999 200 HP



R809

VOLVO PENTA

REPLACES: VOLVO

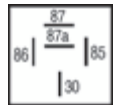
PENTA 3858081,

3858809

1998 SX-M-MAC,
MDA, MLT), 3.0GLP-
D, 4.3GL-E, 4.3GL-EF,
4.3GXi-F, 4.3GXi-FF,
4.30Si-F, 4.30Si-FF,

5.0GL-F, 5.0GL-FF, 5.0GXi-F, 5.0GXi-FF, 5.0Si-F, 5.0Si-FF, 5.7Gi-F/FF, 5.7GXi-G/GF, 5.70Si-E/EF, 5.70Xi-E/EF, 5.7Giil-F, 5.7GXi-G, 8.1Gi-G/GF, 8.1GXi-F/FF, 8.10Si-C/CF, 8.1Giil-G, 8.1GXii-F, DPH-A, DPH-B, DPR-A, DPH-B, EF drives, SX-M TSKs

1998-2005 SX-M, DP-SM, (WT drives, PJX-C, PJX-S SX-M, -MA-CLT, -MDA, -MDB, -MHP, -MTD, DP-E, DP-S, -S1, -S2, DP-SM, -SM) XDP-B, O.M.C. COBRAS WITH TELEFLEX PUMPS



R952

FITS: VOLVO PENTA

12 Volt, 30 Amp



VR095

LATE MODEL S.E.V. MARCHAL,

REPLACES: VOLVO PENTA 841688-5

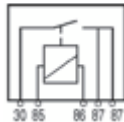
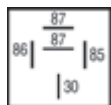
Plastic case, 12 Volt



R832

FITS: VOLVO PENTA

12 Volt, 30 Amp



VR404

PRESTOLITE MARINE

REPLACES: O.M.C. 383440

12 Volt



R950

YAMAHA O/B TILT/TRIM RELAY

REPLACES: YAMAHA 6E5 81950-01

1991 & Up 115 HP,

1991 - 2004 130 HP,

1991 & Up 150 HP,

1991 - 2000 175 HP,

1991 - 1999 200 HP

SUZUKI 38410-94540



VR405

PRESTOLITE MARINE

FITS: CRUSADER, PALMER,

UNIVERSAL, ETC.

REPLACES: CHRYSLER 2847527

12 Volt



© ARCO STARTING & CHARGING SPECIALISTS



VR406

PRESTOLITE MARINE
REPLACES: PLEASURECRAFT
 RO98002, etc.
 12 Volt



VR407

PRESTOLITE MARINE
FITS: OWENS YACHT, ETC.
REPLACES: CHRIS CRAFT
 16.60-00031
 12 Volt



VR512

FITS: PARIS RHONE/VALEO
 A13N147M, A13N148M
LATE MODEL VOLVO PENTA
 858840
 12 Volt



M883

Regulator assembly
FITS: LATE MODEL MANDO
REPLACES MERCURISER 811883



BH450

Brush Holder Assembly
FITS: ARCO 30460, 30470
 High performance starters



BK899

Replacement brushes
FITS: Most HITACHI jet ski,
 small outboard and
 snowmobile starters



BK900

Replacement brushes
FITS: AMERICAN-MADE
 permanent magnet outboard starters



DV225

Fits: VALEO starter nos. D9R116, D9R144
 used on **VOLVO PENTA** diesel engines,
ARCO starter No. 97225



DV450

CW Rotation, 11 tooth gear
FITS: ARCO High Performance
 Gear Reduction Starter 30470



DV456

FITS: DELCO 14MT, ARCO 30456
 Starters w/CW Rotation
9-tooth gear



DV457

FITS: DELCO 14MT, ARCO 30457
 Starters w/CCW Rotation
9-tooth gear



DV460

FITS: High Performance
ARCO 30460 Gear Reduction Starter
 CW Rotation, 9 tooth gear





M525

Reservoir kit
FITS: ARCO 6275
Replaces: MERCURISER
Includes: Reservoir, cap, O-rings, mounting screw



M531

Reservoir kit
FITS: ARCO 6227
Replaces: Volvo
Includes: Reservoir, cap, O-rings



M532

Fits MERCURISER 883166A2

M533

Fits VOLVO-PENTA 3858077
New style reservoir kit, heavy duty 4-screw mount. Improved design, will only fit late model OILDYNE pumps equipped with 4 mounting ears.
Includes: Reservoir, screws, cap, O-rings.



MBK450

Mounting bolt kit for gear reduction starters
FITS: ARCO 30470 starter,
2 long mounting bolts, 3/8"-16 N.C. threads
This kit will also fit all DELCO gear reduction starters w/staggered bolt mounting pattern



**Required when replacing a 10MT Starter with a Gear Reduction Starter.
Will NOT FIT metric engines or 10MT starters.**

MBK460

Mounting bolt kit
FITS: ARCO 30460 starter,
3/8"-16 N.C. threads
This kit will also fit DELCO 10MT style starters w/1 short & 1 long mounting bolt



Will NOT FIT metric engines

PA450S

1 3/4" Plunger for ARCO SW450
Fits 30460



PA450L

2 1/4" Plunger for ARCO SW450
Fits 30470



PA924

Plunger to fit ARCO SW924
Replaces: Force 839126-1



SR102

Prestolite repair kit
FITS: PRESTOLITE
2-brush outboard starters



SR104

Prestolite repair kit
FITS: PRESTOLITE
4-brush outboard starters



SR107

ARCO BRUSH LOADING TOOL
Makes brush loading as simple as 1-2-3
Perfect tool for loading outboard starter brushes.
Fits most all size and shape caps.



TM001

Electrical Technical Manual

This easy-to-understand technical reference is written by Mechanics for Mechanics. Procedures are explained in basic terms with illustrated examples.



MISCELLANEOUS ITEMS



TAK217

Screws, O-ring, and adapter for tilt/trim motors
FITS: ARCO 6217, PRESTOLITE ERH4102



TAK247

Mounting bolts, flat washers, O-ring and couplers for tilt/trim motors
FITS: ARCO 6247 & 6248



TAK276

Mounting bolts, O-ring, fill cap and shaft adapters for tilt/trim motors
FITS: ARCO 6274 & 6276



WH800

Wire connector.
Fits ARCO alternators
 20800, 20810, 20815, 20840, 20850, 65050 & 65055



WH826

Wire connector.
Fits ARCO alternators
 20826, 20827 & 20828



WH830

Wire connector.
Fits ARCO alternators
 20820, 20821, 20822, 20825 & 20830
 60073, 60074 & 60076



DV1000

HEAVY-DUTY Idler gear assembly
 Sea-Doo, PWC 951cc



To be discontinued when present stock is exhausted.

DV440

HEAVY-DUTY Replacement drive gear
FITS: KAWASAKI PWC 440 - 550cc



DK440

Drive spring /retainer kit



To be discontinued when present stock is exhausted.

DV500

HEAVY-DUTY Replacement drive gear
FITS: YAMAHA PWC 500cc



DK500

Drive spring/retainer kit



To be discontinued when present stock is exhausted.

DV750

HEAVY-DUTY Idler gear assembly
FITS: KAWASAKI 650, 750, 900cc



To be discontinued when present stock is exhausted.

DV744

HEAVY-DUTY Idler gear assembly
FITS: POLARIS PWC 650-750cc



To be discontinued when present stock is exhausted.

DV700

HEAVY-DUTY Idler gear assembly
FITS: YAMAHA PWC 650, 701, 760cc



To be discontinued when present stock is exhausted.

DV650

HEAVY-DUTY Replacement drive gear
FITS: SEA-DOO PWC 580, 650, 720cc
9-tooth drive gear



DK580

Drive spring/retainer kit



To be discontinued when present stock is exhausted.



NEW ADDITIONS AVAILABLE & READY TO SHIP!

Evinrude G2 O/B Starter

ARCO PART NO. **5357**



SW357

HEAVY-DUTY
FITS: **ARCO** STARTER PART
NUMBER **5357** USED ON
EVINRUDE G2 ENGINES.

Replaces BRP Numbers 587078 & 587291
Fits Evinrude G2 Engines

Alternator For Mercury Verado O/B

ARCO PART NO. **20860**



**FITS: All Mercury
Verado Outboards
12 Volt, 70 AMP
Internal Fan
Multi-groove
serpentine
pulley included**

Replaces Remy Part Number 19020618.
Replaces Mercury Part Number 892940T,
892940T01, 892940T02
Fits All Mercury Verado Outboards.

Volvo Penta Tilt/Trim Relay



ARCO PART NO.

R809

VOLVO PENTA 3858081, VOLVO PENTA 3858809
Volvo Penta (1998 SX-M-MAC, MDA, MLT),
3.0GLP-D, 4.3GL-E, 4.3GL-EF, 4.3GXi-F, 4.3GXi-FF,
4.30Si-F, 4.30Si-FF, 5.0GL-F, 5.0GL-FF, 5.0GXi-F,
5.0GXi-FF, 5.0Si-F, 5.0Si-FF, 5.7Gi-F/FF,
5.7GXi-G/GF, 5.70Si-E/EF, 5.70Xi-E/EF, 5.7Gi-F,
5.7GXi-G, 8.1Gi-G/GF, 8.1GXi-F/FF, 8.10Si-C/CF,
8.1Gi-F, 8.1GXii-F, DPH-A, DPH-B, DPR-A, DPH-B,
EF drives, SX-M TSKs 1998-05, SX-M, DP-SM,
(WT drives, PJX-C, PJX-S SX-M, -MACLT, -MDA,
-MDB, -MHP, -MTD, DP-E, DP-S, -S1, -S2, DP-SM,
-SM) XDP-B, O.M.C. COBRAS WITH TELEFLEX PUMPS

TILT TRIM MOTOR FOR YAMAHA O/B



6257 (NEW)

HEAVY-DUTY
FITS: YAMAHA

2005-2015 50/60HP 4 Stroke
2-wire connection

3-bolt mount, ring terminal ends
Includes O-ring

Replaces Yamaha part numbers
6C5-43880-01 & 6C5-43880-00