



AIRCRAFT PARTS CORP.

STARTER-GENERATOR

TECHNICAL MANUAL



ENGINEER'S OF THE INDUSTRY'S FINEST
STARTER-GENERATORS AND GENERATOR CONTROL UNITS
TRUSTED BY PROFESSIONALS. POWERED BY APC.

OUR STANDARDS IN STARTER-GENERATOR MANUFACTURING ARE UNMATCHED!

For over forty years, APC has been committed to being the leader and industry standard in the design and manufacture of aircraft electrical systems. Today this goal and pledge has not changed, neither has our commitment to serving our customers, the quality of our products, or company ownership. In fact, while most other manufacturers are changing hands, consolidating and moving their manufacturing location, APC has continued to operate under the same name, ownership and manufacturing facility.

APC has long been recognized for its outstanding product achievements in the aircraft industry. The successful performance of our starter-generators in the field is the culmination of our many tried and true design attributes, and skilled manufacturing techniques. Our starter-generators are manufactured and assembled with only the highest quality components. Even today, some components of our generators are being produced by hand. The workmanship that goes into our products is second to none.

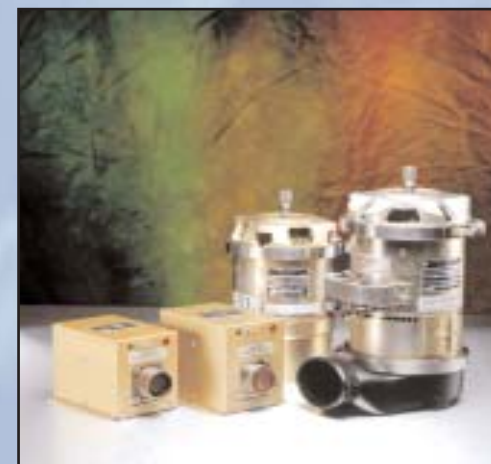
Far more advances in generator design and performance are being made everyday. Even while industry practices and standards are rapidly changing, APC has welcomed these challenges and continuously evolves along with industry trends in today's market. With the most up-to-date technologies and product knowledge close at hand, APC has stepped into the forefront of generator design. APC's product line of starter-generators covers all industry requirements. APC meets these required standards for single and multi-engine helicopters, as well as fixed wing, commuter, military and business jets. Our generators are also used in auxiliary power units (APU) installed on some of the world's finest aircraft.

APC continues to make every effort to prevent product failure, and has been highly successful in this aspect. Our generators contain components such as armatures insulated with the highest standards in place. The armatures and stators are vacuum impregnated with an epoxy-type varnish. The wedge-type insulation manufactured for our generators and steel banding allows for safe over-speed conditions. Shunt coils are 100% wrapped, preventing internal shorts. APC's generators exhibit tolerance to high operating temperatures, surpassing many others. This high temperature capability yields a longer life of the generator. Brush and commutator wear is minimal over time, also leading to a longer life. A reinforced construction of the commutator head eliminates bearing failures. APC's bearings are carefully selected and packed with high temperature grease. Our products are manufactured and tested to very tight tolerances, which allows for less wear and vibration. Our current TBO, (Time between Overhauls) far exceeds the current industry standard. Our overhaul process and procedures are very strict and cost-effective, ultimately assuring our customers the best quality results.

Currently our starter-generators are rated from 150 to 400 amperes. The rated power output ranges from 4.5 to 12 kilowatts. Typical speed range for our starter-generators is from 7,000 to 13,000 rpm. Typical starter outputs, rated at 1000 rpm with an input of 20 volts, are valued between 3.8 and 12.5 horsepower.

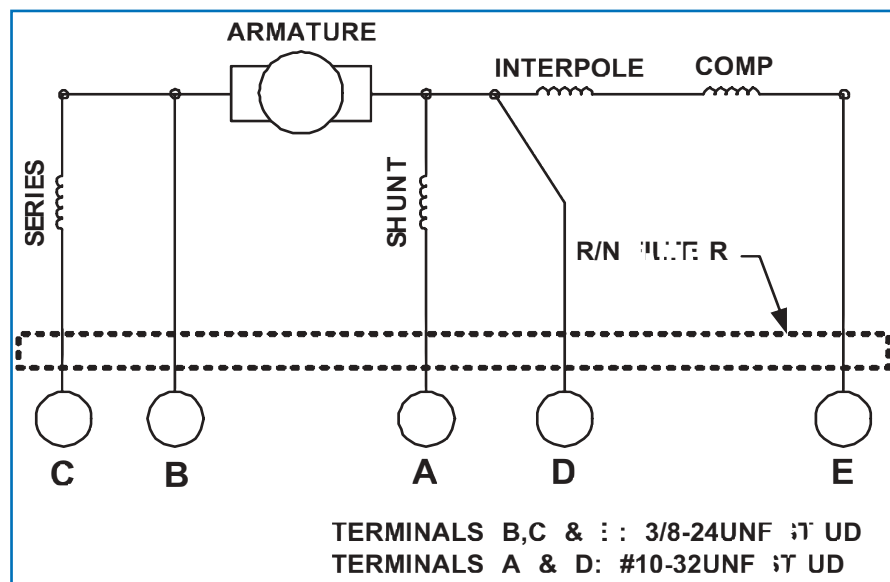
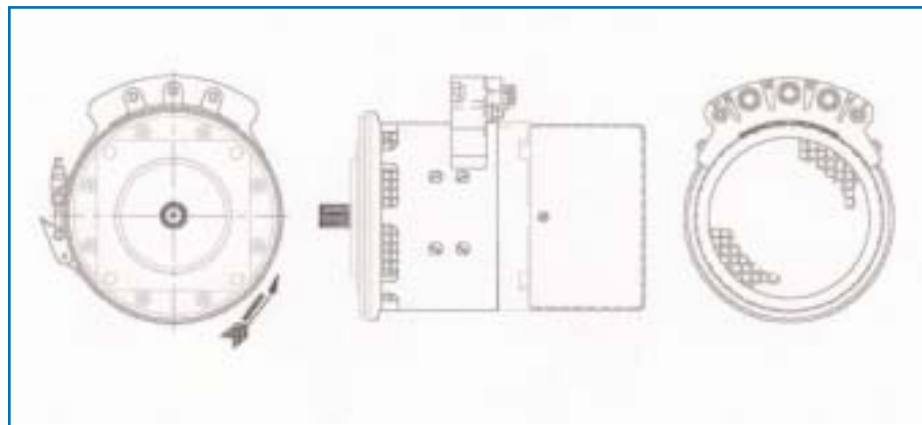
APC starter-generators offer many solutions for different customers with various needs and requirements. APC's generators can be manufactured with different types of cooling systems, according to the aircrafts interface requirements. Many of our generators are self-cooled with the aid of a fan, with some generators blast-cooled, also with the aid of a fan. Various types of mountings are used which can allow our customers to choose a generator that best suits their particular requirements. Radio noise can often be problematic. APC manufactures generators in which the radio noise is virtually eliminated. Minimizing these unwanted factors in starter-generators is an important goal and commitment of APC. High vibrations can cause many negative effects on generators when in operation. Our starter-generators exhibit radial vibrations of less than .001 inches at maximum, assuring that our products are capable of maximum performance, as well as being of excellent quality.

APC designs and manufactures starter-generators that are far superior in architecture and performance. Our generators are manufactured for high performance while the price to our customers is extremely competitive. Adding to that, worldwide technical support is available for APC's generators, making overhaul and repair accessibility most convenient. At APC our motto is, "the Customer is the Focus of Everything We Do", and every effort is made to place the customer's needs in the forefront. We continuously strive to meet and exceed our customer's expectations. We do this through the most technologically-advanced product designs for superior performing products and practicing lean manufacturing techniques to keep costs down and passing on the savings to our customers. Our customer service staff is number one in the business, and combined with the entire staff at APC, our business goals have been achieved overall in terms of Quality, Price and Delivery. If you haven't already, call us toll-free at 1-877-4APCMFG, (1-877-427-2634), to learn why APC continues to be the most trusted OEM in the industry today.



APC "XL" Series Starter-Generators are known for the highest quality and dependability since 1960.

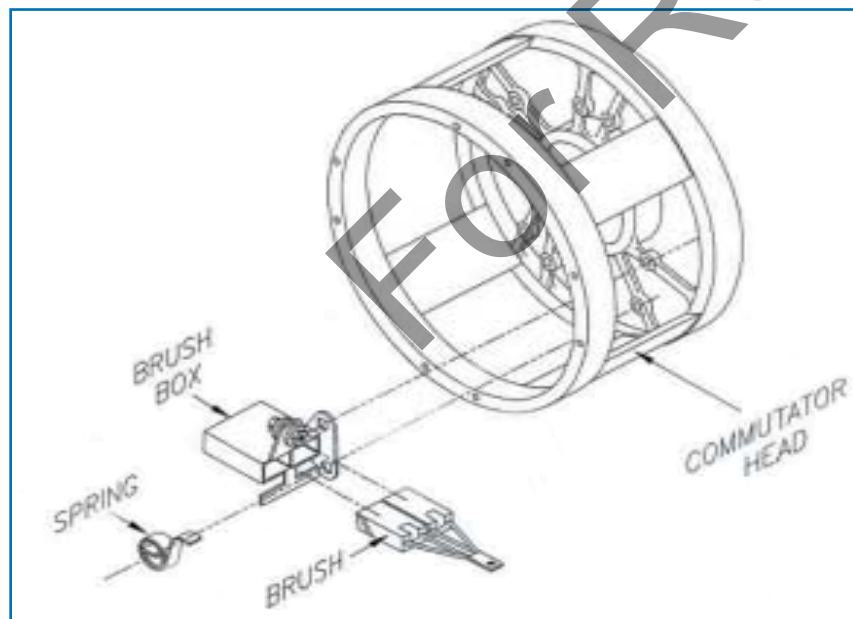
TYPICAL STARTER-GENERATOR CONFIGURATION



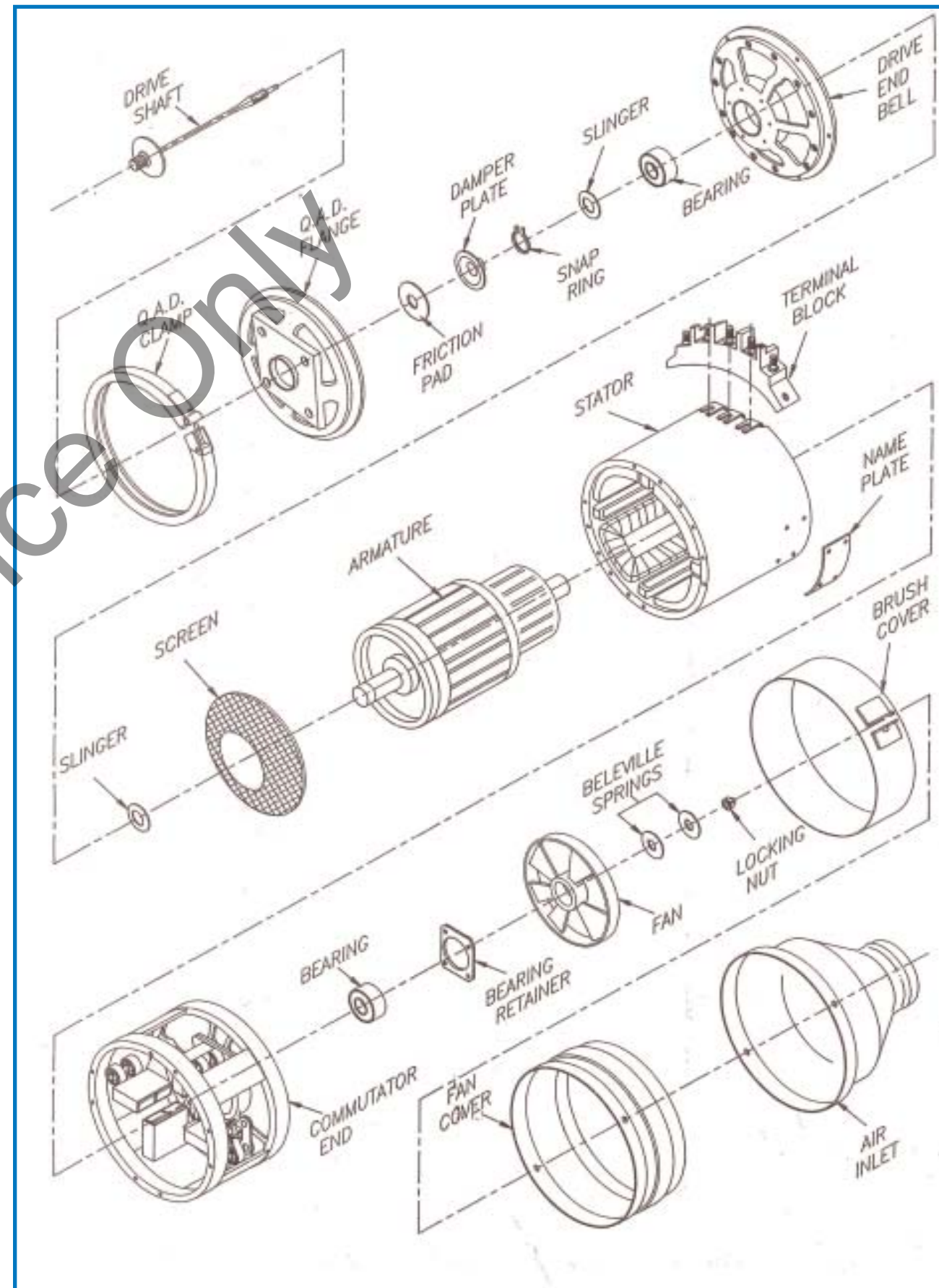
TYPICAL WIRING DIAGRAM

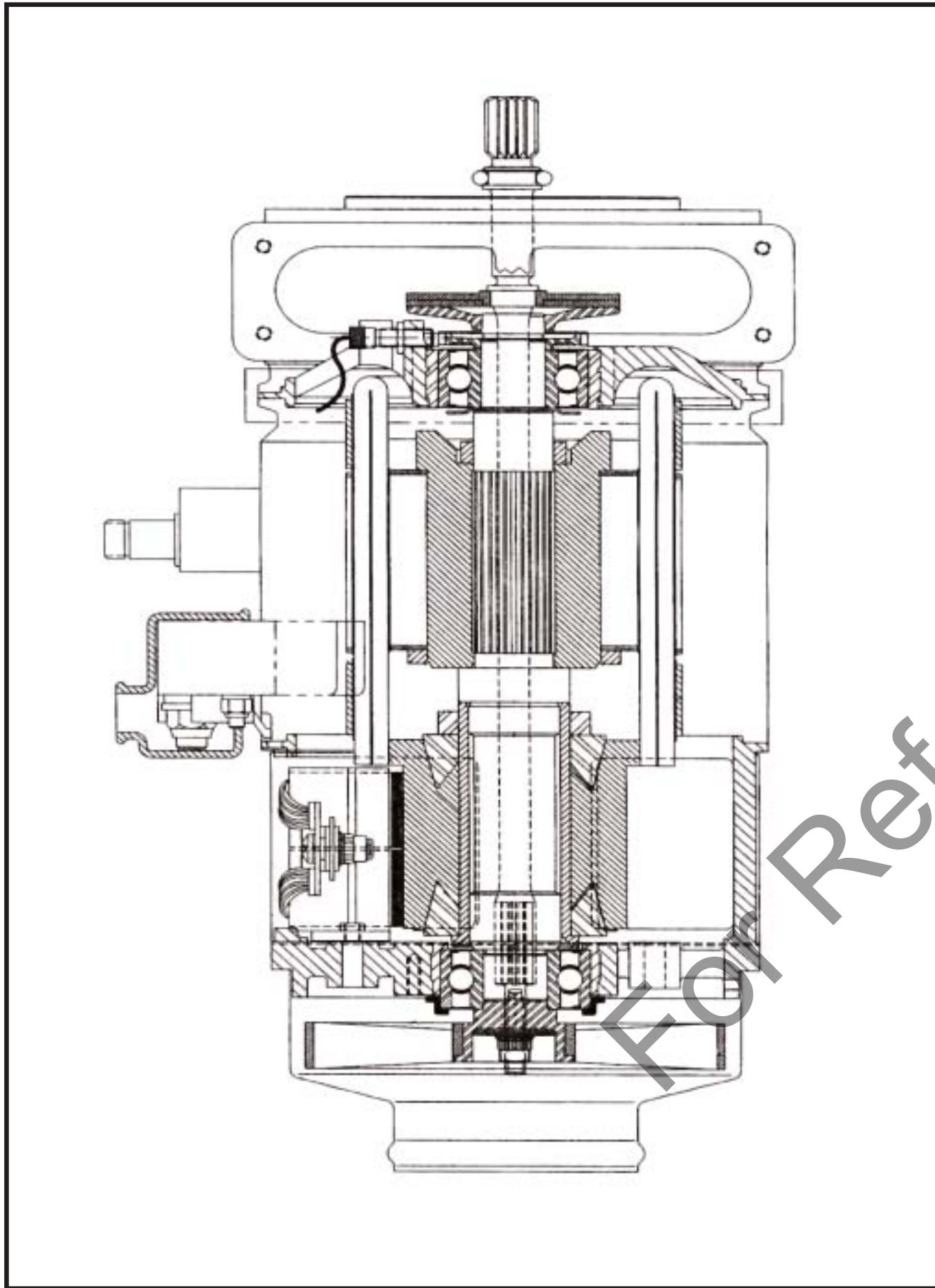
TERMINALS B,C & D : 3/8-24UNF IT UD
 TERMINALS A & E : #10-32UNF IT UD

COMMUTATOR-END BELL COMPONENTS



TYPICAL COMPONENTS OF AN APC STARTER-GENERATOR:





APC STARTER-GENERATOR SERIES AT A GLANCE:

MODEL SERIES	RATED VOLTAGE	RATED OUTPUT	SPEED RANGE	CONTINUOUS LOAD WITHIN SPEED RANGE	TYPICAL STARTER OUTPUT AT 1000 RPM WITH 20 V INPUT	MAXIMUM STARTER VOLTAGE	MAXIMUM OPERATING ALTITUDE	COOLING TYPE
150SG SERIES	28.5 V DC	4.5 kW	8,100-12,000 RPM	150 AMPS	3.8 HP	28 V DC	25,000 FT	SELF-COOLED WITH FAN
160SG SERIES	28.5 V DC	4.8 kW	8,100-12,000 RPM	160 AMPS	4.0 HP	28 V DC	25,000 FT	SELF-COOLED WITH FAN
200SGL SERIES	28.5 V DC	6.0 kW	7,050-12,000 RPM	200 AMPS	5.8 HP	28 V DC	45,000 FT	BLAST COOLED WITH FAN
200SG SERIES	30 V DC	6.0 kW	7,800-12,000 RPM	200 AMPS	6.4 HP	28 V DC	35,000 FT	BLAST COOLED WITH FAN
250SG SERIES	30 V DC	7.5 kW	6,900-12,000 RPM	250 AMPS	8.0 HP	28 V DC	35,000 FT	BLAST COOLED WITH FAN
300SGL SERIES	28 V DC	9.0 kW	7,200-12,000 RPM	300 AMPS	9.8 HP	28 V DC	55,000 FT	BLAST COOLED WITH FAN
300SG SERIES	30 V DC	9.0 kW	7,700-12,175 RPM	300 AMPS	10.1 HP	28 V DC	50,000 FT	BLAST COOLED WITH FAN
400SG SERIES	30 V DC	12 kW	7,200-12,000 RPM	400 AMPS	12.5 HP	28 V DC	55,000 FT	BLAST COOLED WITH FAN



150SG SERIES



160SG SERIES



200SGL SERIES



200SG SERIES



250SG SERIES



300SGL SERIES



300SG SERIES



400SG SERIES



APC 150SG SERIES GENERATORS

The 150 AMP series starter-generators were designed for the starting of turbine engines. This starter-generator is used as an engine-driven source of DC power and are normally rated at 28.5 volts, 150 amperes over a speed range of 8,100 - 12,000 rpm.

Interpole and compensating winding are provided in the negative circuit to prevent field distortion and insure favorable commutation conditions.

TYPICAL AIRCRAFT APPLICATIONS:

AGUSTA
 EUROCOPTER: AS350B, AS35N, AS355
 BELL: 206A, B, L
 MD HELICOPTER
 PILATUS: BRITAN/NORMAN
 U.S. ARMY: OH-56, OH-58
 U.S. COAST GUARD: H65, DAUPHINE
 SCHWEIZER: 330T
 VALMET: L-90TP



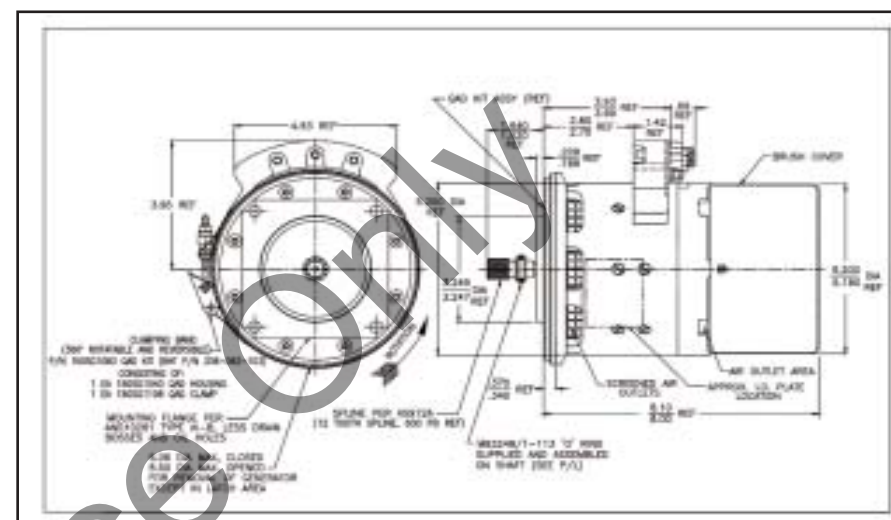
DESIGN FEATURES:

- Super precision bearings are carefully selected and packed with high temperature grease to fit each application.
- Latest high temperature insulating materials used for longer life.
- Wedge type armature construction and steel banding insure safe over speed condition.
- Armatures and field coils are vacuum impregnated to insure maximum insulation performance.
- Reinforced construction of commutator head minimizes brush failure, and possibility of bearing failure due to head vibration.
- Dynamic balancing to 5 grain-inches is performed on each armature and fan.
- Cast aluminum axial fan provides more cooling air throughout entire speed range and eliminates blade flattening at high speed.
- Improved drive shaft and damper are designed for longer life.
- Armature conductors are silver brazed to the commutator risers for maximum durability.

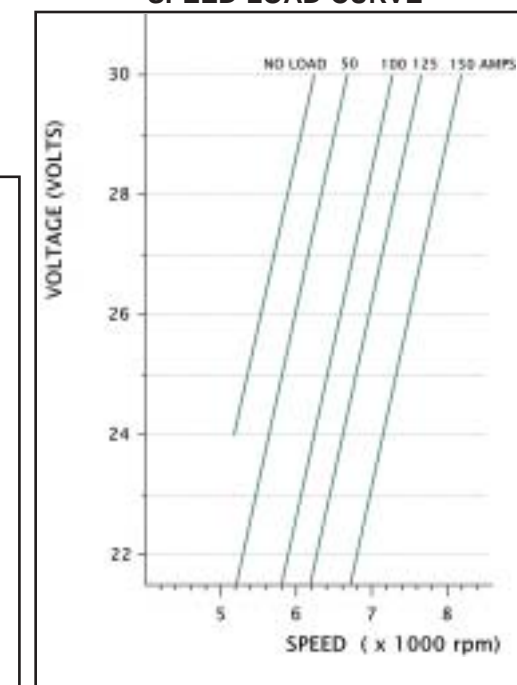
PRODUCT SPECIFICATIONS:

LENGTH:	8.0 INCHES	MAXIMUM OVERSPEED:	14,000 RPM
DIAMETER:	5.25 INCHES	TYPICAL STARTER OUTPUT AT 1000 RPM WITH 20V INPUT:	3.8 HP
WEIGHT (APPROXIMATE):	18 LBS	MAXIMUM OPERATING ALTITUDE:	25,000 FT
RATED OUTPUT:	4.5 kW	MAXIMUM STATIC TORQUE:	550 IN-LB.
RATED TERMINAL VOLTAGE:	28.5 V DC	OVER HUNG MOMENT:	65 IN-LB MAX.
COOLING:	SELF-COOLED WITH FAN	RATED START LOCKED ROTOR TORQUE:	10 FT.-LB 400 AMPS 12 V MAX.
CONT. LOAD WITHIN SPEED RANGE:	150 AMPS	MAXIMUM ALLOWABLE START CURRENT & VOLTAGE:	700 AMPS 28 V
GENERATOR MODE SPEED RANGE:	8,100-12,000 RPM	EQUALIZING VOLTAGE AT RATED LOAD CURRENT:	1.49 -1.97 V
MINIMUM SPEED:	7,200 RPM 26 V 120 AMPS	RESISTANCE RANGE IN SERIES WITH THE SHUNT FIELD:	0.5 - 35
MINIMUM SPEED FOR REGULATION:	8,100 RPM 30 V 150 AMPS	ALLOWABLE BRUSH WEAR:	0.450 IN.
MAXIMUM SPEED FOR REGULATION:	13,000 RPM	ALLOWABLE COMMUTATOR WEAR:	0.125 IN.

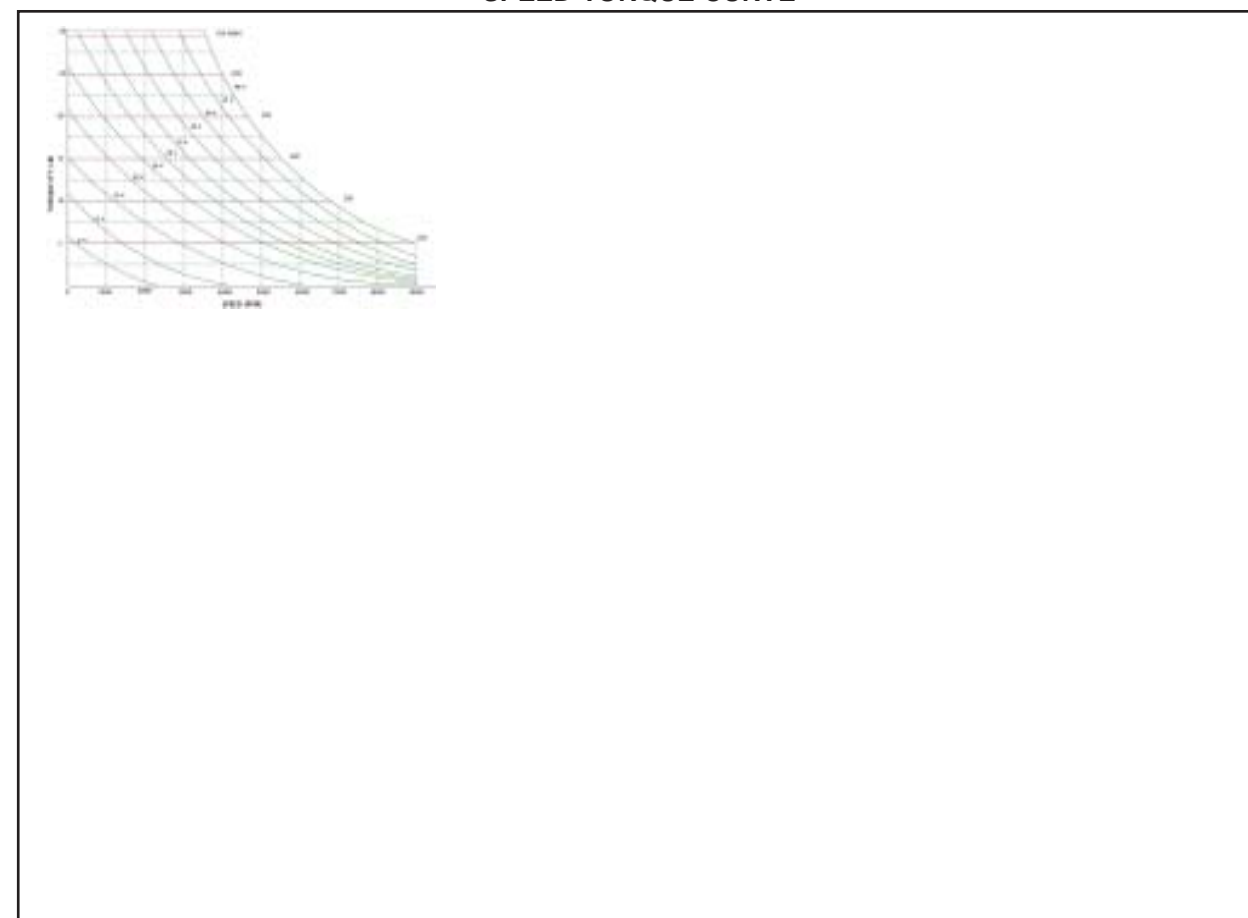
150 AMP SERIES OUTLINE



SPEED-LOAD CURVE



SPEED-TORQUE CURVE





APC 160SG SERIES GENERATORS

The 160 AMP series starter-generators were designed for the starting of turbine engines. This starter-generator is used as an engine-driven source of DC power and are normally rated at 28.5 volts, 160 amperes over a speed range of 8,100 - 12,000 rpm.

Interpole and compensating winding are provided in the negative circuit to prevent field distortion and insure favorable commutation conditions.

TYPICAL AIRCRAFT APPLICATIONS:

AGUSTA: A109C, F, K, POWER
EUROCOPTER: EC-120, EC-130



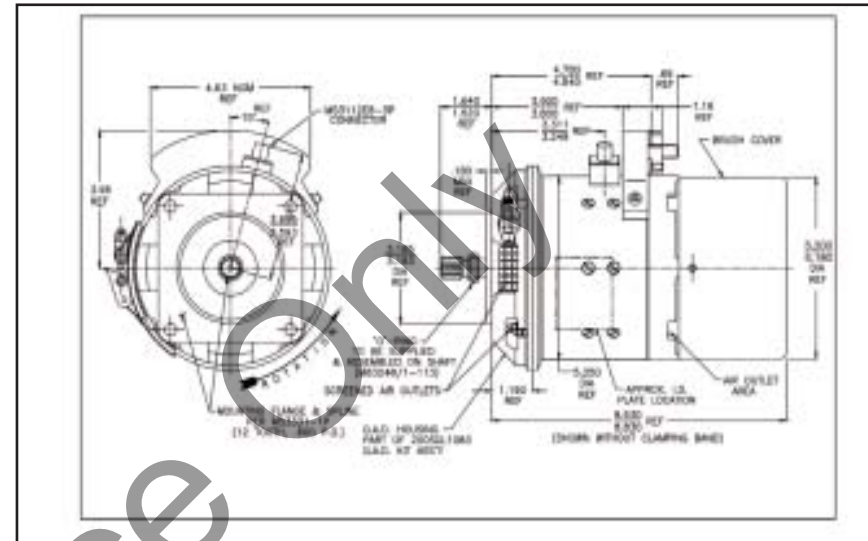
DESIGN FEATURES:

- Armature conductors are silver brazed to the commutator risers for maximum durability.
- Armatures and field coils are vacuum impregnated to insure maximum insulation performance.
- Cast aluminum axial fan provides more cooling air throughout entire speed range and eliminates blade flattening at high speed.
- Dynamic balancing to 5 grain-inches is performed on each armature and fan.
- Improved drive shaft and damper are designed for longer life.
- Latest high temperature insulating materials used for longer life.
- Reinforced construction of commutator head minimizes brush failure, and possibility of bearing failure due to head vibration.
- Super precision bearings are carefully selected and packed with high temperature grease.
- Wedge type armature construction and steel banding insure safe over speed condition.

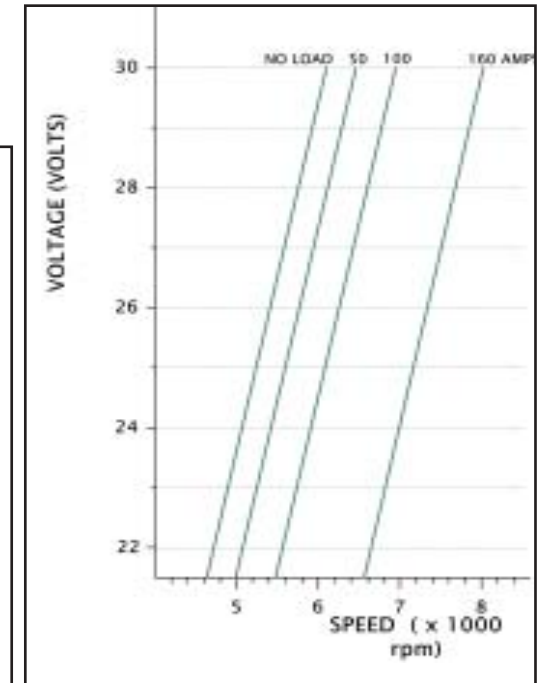
PRODUCT SPECIFICATIONS:

LENGTH:	8.0 INCHES	MAXIMUM OVERSPEED:	14,000 RPM
DIAMETER:	5.25 INCHES	TYPICAL STARTER OUTPUT AT 1000 RPM WITH 20V INPUT:	3.8 HP
WEIGHT (APPROXIMATE):	18 LBS	MAXIMUM OPERATING ALTITUDE:	25,000 FT
RATED OUTPUT:	4.8 kW	MAXIMUM STATIC TORQUE:	850 IN-LB.
RATED TERMINAL VOLTAGE:	28.5 V DC	OVER HUNG MOMENT:	65 IN-LB MAX.
COOLING:	SELF-COOLED WITH FAN	RATED START LOCKED ROTOR TORQUE:	10 FT.-LB 400 AMPS 12 V MAX.
CONT. LOAD WITHIN SPEED RANGE:	160 AMPS	MAXIMUM ALLOWABLE START CURRENT & VOLTAGE:	700 AMPS 28 V
GENERATOR MODE SPEED RANGE:	8,100-12,000 RPM	EQUALIZING VOLTAGE AT RATED LOAD CURRENT:	1.49 -1.97 V
MINIMUM SPEED:	7,200 RPM 26 V 120 AMPS	RESISTANCE RANGE IN SERIES WITH THE SHUNT FIELD:	0.5 - 35
MINIMUM SPEED FOR REGULATION:	8,100 RPM 30 V 150 AMPS	ALLOWABLE BRUSH WEAR:	0.450 IN.
MAXIMUM SPEED FOR REGULATION:	13,000 RPM	ALLOWABLE COMMUTAR WEAR:	0.125 IN.

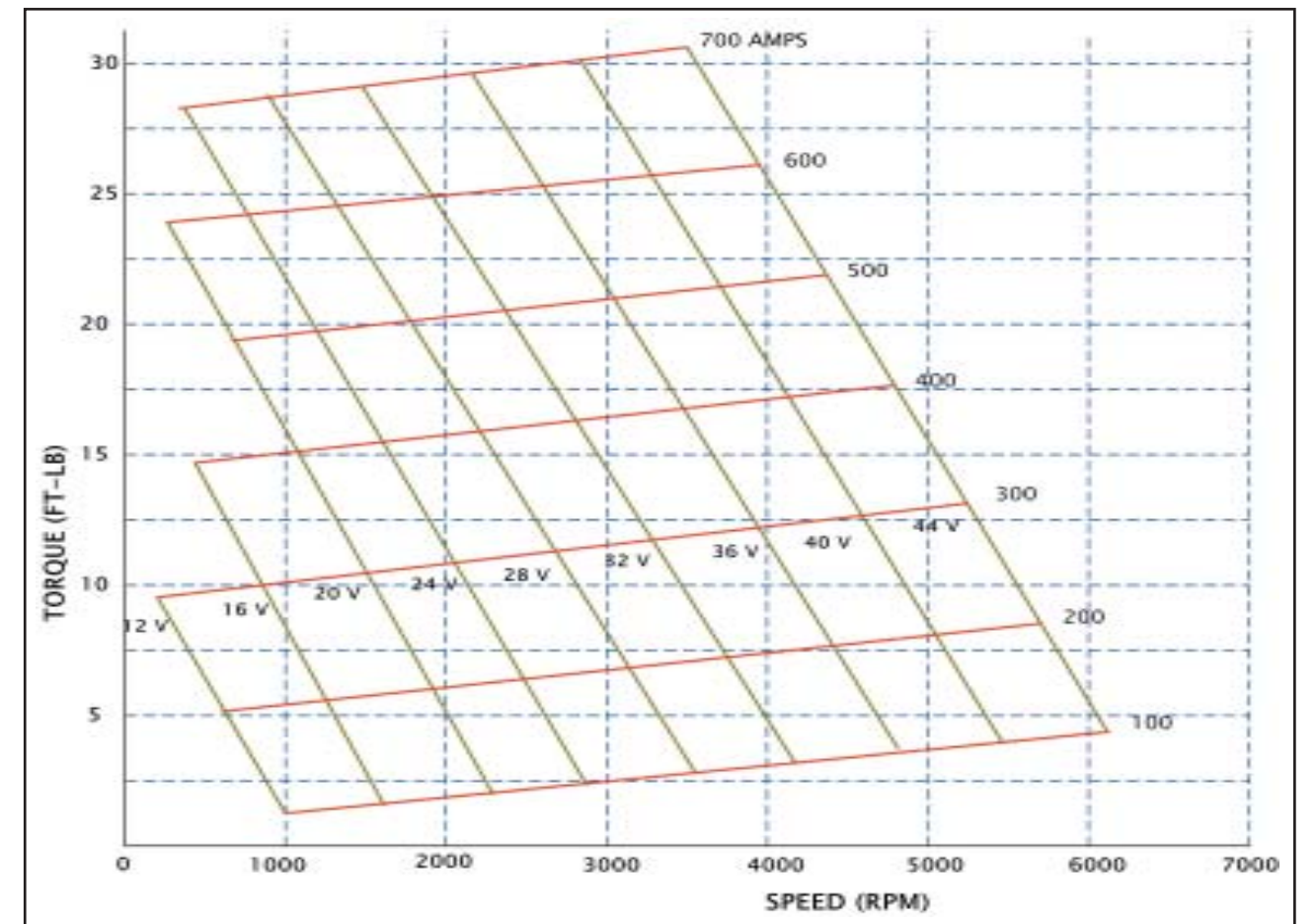
160 AMP SERIES OUTLINE



SPEED LOAD CURVE



SPEED TORQUE CURVE





APC 200SGL SERIES GENERATORS

The 200SGL AMP series starter-generators were designed for the starting of turbine engines. This starter-generator is used as an engine-driven source of DC power and are normally rated at 28.5 volts, 200 amperes over a speed range of 7,050 - 12,000 rpm.

Interpole and compensating winding are provided in the negative circuit to prevent field distortion and insure favorable commutation conditions.

TYPICAL AIRCRAFT APPLICATIONS:

MD HELICOPTER: 500, 530, 600N
 SIKORSKY: S76A, C, C+
 AGUSTA: A119
 BELL: 206L-1, 206L-3, 407, 430
 CESSNA: CARAVAN 208
 U.S. ARMY: OH-58-D
 EMBRAER: EMB110
 EUROCOPTER
 NEW PIPER: MERIDIAN
 PZL: SW4, KANIA
 GROBE: G140
 PILATUS: BRITTEN/NORMAN



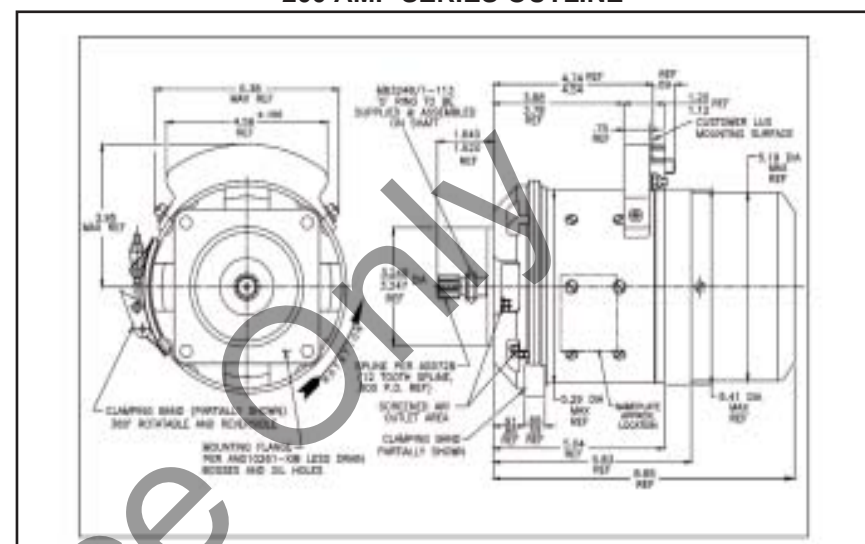
DESIGN FEATURES:

- Improved drive shaft and damper are designed for longer life
- Wedge type armature construction and steel banding insure safe over speed condition.
- Dynamic balancing to 5 grain-inches is performed on each armature and fan.
- Super precision bearings are carefully selected and packed with high temperature grease to fit application as needed.
- Armature conductors are silver brazed to the commutator risers for maximum durability.
- Latest high temperature insulating materials used for longer life.
- Cast aluminum axial fan provides more cooling air throughout entire speed range and eliminates blade flattening at high speed.
- Armatures and field coils are vacuum impregnated to insure maximum insulation performance.

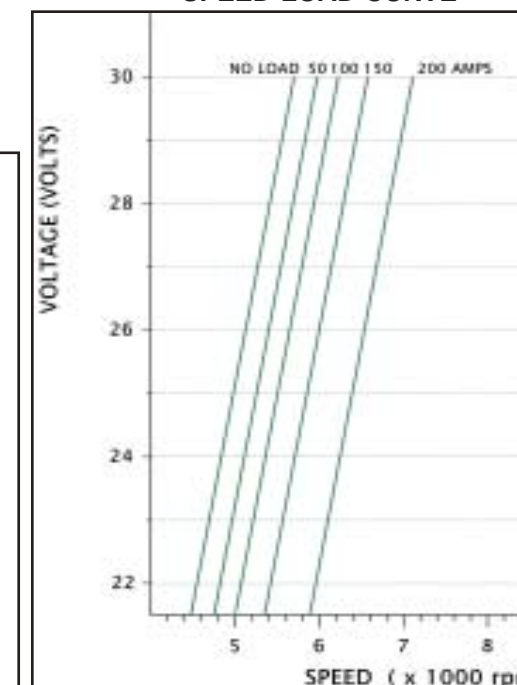
PRODUCT SPECIFICATIONS:

LENGTH:	8.80 INCHES	MAXIMUM OVERSPEED:	14,000 RPM
DIAMETER:	5.30 INCHES	TYPICAL STARTER OUTPUT AT 1000 RPM WITH 20V INPUT:	5.8 HP
WEIGHT (APPROXIMATE):	21.7 LBS	MAXIMUM OPERATING ALTITUDE:	45,000 FT
RATED OUTPUT:	6.0 kW	MAXIMUM STATIC TORQUE:	1100 +/- IN-LB.
RATED TERMINAL VOLTAGE:	28.5 V DC	OVER HUNG MOMENT:	76 IN-LB MAX.
COOLING:	BLAST-COOLED WITH FAN	RATED START LOCKED ROTOR TORQUE:	13 FT.-LB 400 AMPS 12 V MAX.
CONT. LOAD WITHIN SPEED RANGE:	200 AMPS	MAXIMUM ALLOWABLE START CURRENT & VOLTAGE:	1000 AMPS 28 V
GENERATOR MODE SPEED RANGE:	7,050-12,000 RPM	EQUALIZING VOLTAGE AT RATED LOAD CURRENT:	1.49 -1.97 V
MINIMUM SPEED:	7,200 RPM 28.5 V 200 AMPS	RESISTANCE RANGE IN SERIES WITH THE SHUNT FIELD:	0.5 - 35
MINIMUM SPEED FOR REGULATION:	7,050 RPM 26.5 V 200 AMPS	ALLOWABLE BRUSH WEAR:	0.650 IN.
MAXIMUM SPEED FOR REGULATION:	13,000 RPM	ALLOWABLE COMMUTATOR WEAR:	0.125 IN.

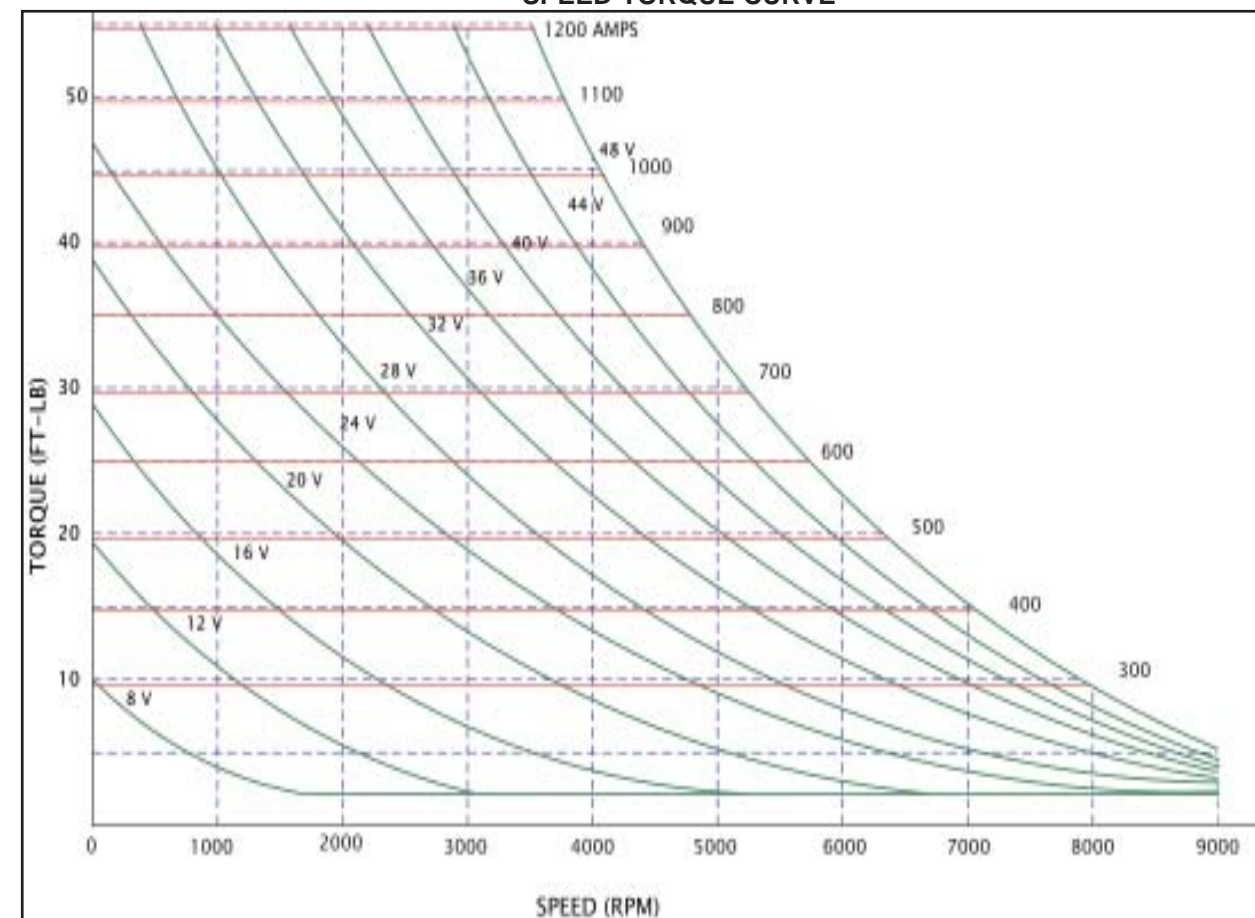
200 AMP SERIES OUTLINE



SPEED-LOAD CURVE



SPEED-TORQUE CURVE





APC 200SG SERIES GENERATORS

The 200SG AMP series starter-generators were designed for the starting of turbine engines. This starter-generator is used as an engine-driven source of DC power and are normally rated at 30 volts, 200 amperes over a speed range of 7,800-12,000 rpm.

Interpole and compensating winding are provided in the negative circuit to prevent field distortion and insure favorable commutation conditions.

TYPICAL AIRCRAFT APPLICATIONS:

U.S. AIR FORCES: AH-1J
 HARBIN: Y12
 U.S. NAVY: UH-IN
 BELL: 212, 412
 MITSUBISHI: MU-2



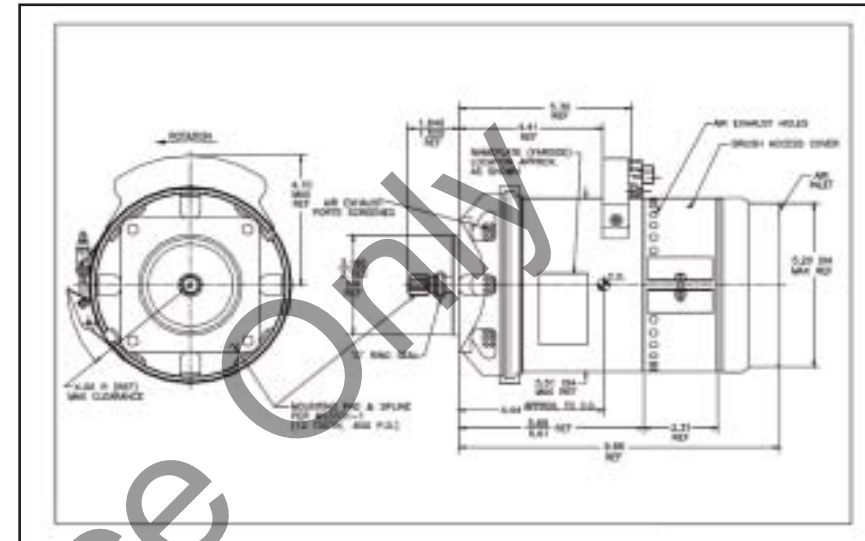
DESIGN FEATURES:

- Wedge type armature construction and steel banding insure safe over speed condition.
- Super precision bearings are carefully selected and packed with high temperature grease to fit application as needed.
- Latest high temperature insulating materials used for longer life.
- Improved drive shaft and damper are designed for longer wear.
- Dynamic balancing to 5 grain-inches is performed on each armature and fan.
- Cast aluminum axial fan provides more air throughout entire speed range and eliminates blade flattening at high speed.
- Armature conductors are silver brazed to the commutator risers for maximum durability.
- Armatures and field coils are vacuum impregnated to insure maximum varnish impregnation.

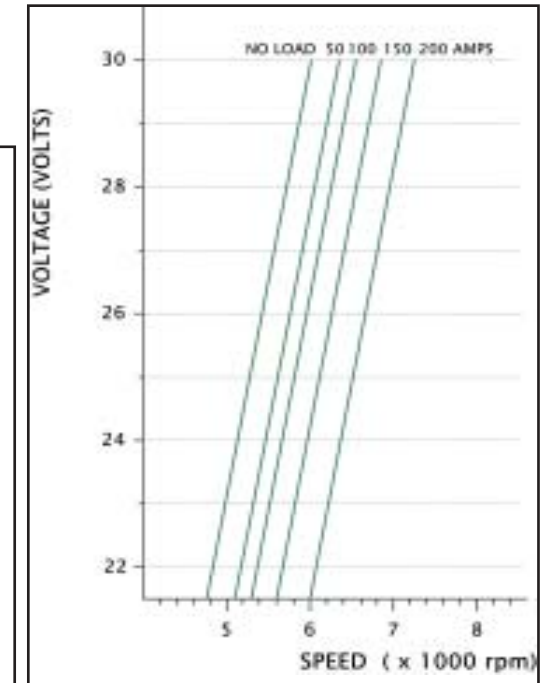
PRODUCT SPECIFICATIONS:

LENGTH:	9.90 INCHES	MAXIMUM OVERSPEED:	14,000 RPM
DIAMETER:	5.50 INCHES	TYPICAL STARTER OUTPUT AT 1000 RPM WITH 20V INPUT:	6.4 HP
WEIGHT (APPROXIMATE):	28.4 LBS	MAXIMUM OPERATING ALTITUDE:	35,000 FT
RATED OUTPUT:	6.0 kW	MAXIMUM STATIC TORQUE:	1500 IN-LB.
RATED TERMINAL VOLTAGE:	30 V DC	OVER HUNG MOMENT:	135 IN-LB MAX.
COOLING:	SELF-COOLED WITH FAN	RATED START LOCKED ROTOR TORQUE:	13 FT.-LB 400 AMPS 12 V MAX.
CONT. LOAD WITHIN SPEED RANGE:	200 AMPS	MAXIMUM ALLOWABLE START CURRENT & VOLTAGE:	1000 AMPS 28 V
GENERATOR MODE SPEED RANGE:	7,800-12,000 RPM	EQUALIZING VOLTAGE AT RATED LOAD CURRENT:	1.49 -1.97 V
MINIMUM SPEED:	6,700 RPM 26 V 200 AMPS	RESISTANCE RANGE IN SERIES WITH THE SHUNT FIELD:	0.5 - 35
MINIMUM SPEED FOR REGULATION:	7,800 RPM 28.5 V 200 AMPS	ALLOWABLE BRUSH WEAR:	0.650 IN.
MAXIMUM SPEED FOR REGULATION:	13,000 RPM	ALLOWABLE COMMUTAR WEAR:	0.125 IN.

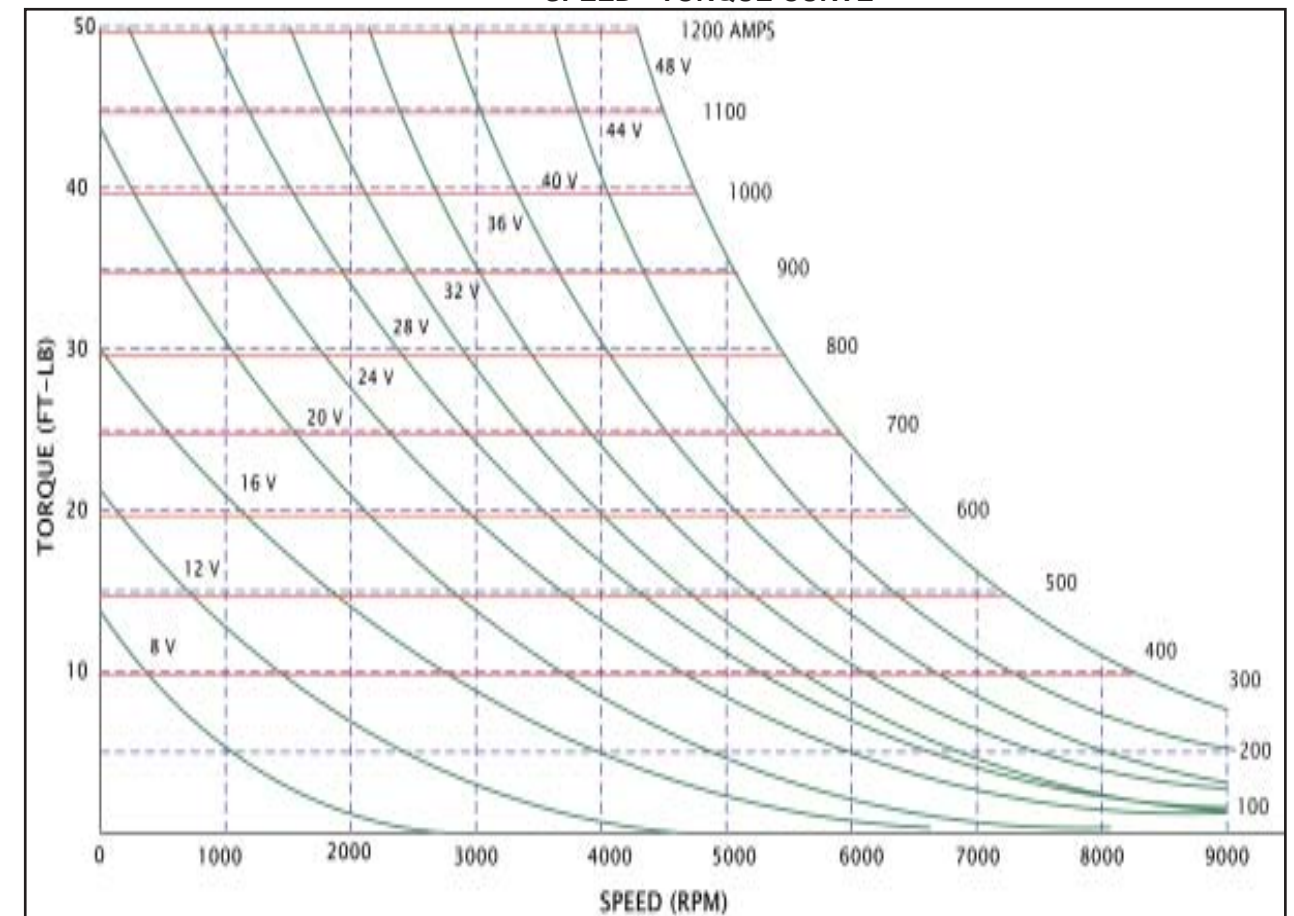
200 AMP SERIES OUTLINE



SPEED- LOAD CURVE



SPEED - TORQUE CURVE





APC 250SG SERIES GENERATORS

The 250SG AMP series starter-generators were designed for the starting of turbine engines. This starter-generator is used as an engine-driven source of DC power and are normally rated at 30 volts, 250 amperes over a speed range of 6,900-12,000 rpm.

Interpole and compensating winding are provided in the negative circuit to prevent field distortion and insure favorable commutation conditions.

TYPICAL AIRCRAFT APPLICATIONS:

BEECH: 90, 100, 200
 DORNIER/HINDUSTAN: DO-228
 PIPER: CHEYENNE PA31
 SCHAFFER: DC-3 TURBINE CONV.
 DEHAVILLAND: TWIN OTTER
 AYRES THRUSH
 MYASISHCHEV: M-101 GZHEL
 AIR TRACTOR
 WALTERS A/S
 RAYTHEON: KING AIRS



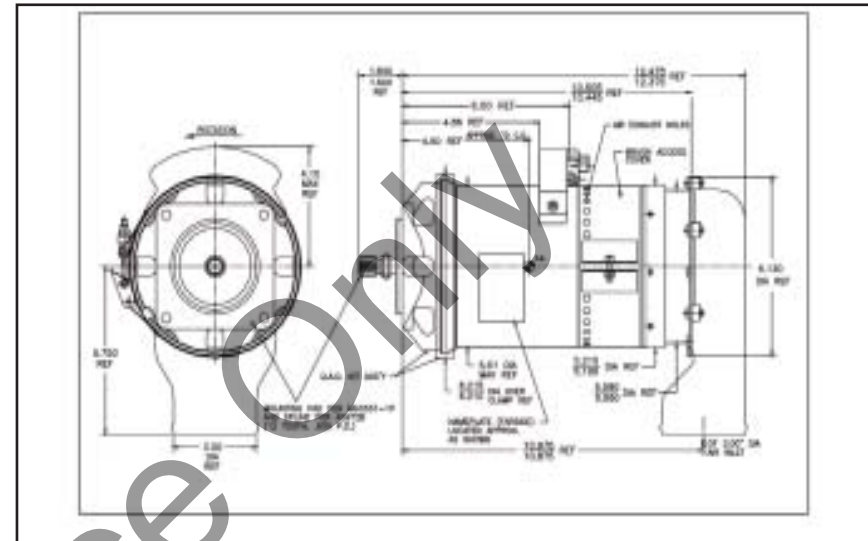
DESIGN FEATURES:

- Armature conductors are silver brazed to the commutator risers for maximum durability.
- Latest high temperature insulating materials used for longer life.
- Armatures and field coils are vacuum impregnated to insure maximum insulation performance.
- Dynamic balancing to 5 grain-inches is performed on each armature and fan.
- Cast aluminum axial fan provides more cooling air throughout entire speed range and eliminates blade flattening at high speed.
- Super precision bearings are carefully selected and packed with high temperature grease to fit application as needed.
- Wedge type armature construction and steel banding insure safe over speed condition.
- Improved drive shaft and damper are designed for longer life.

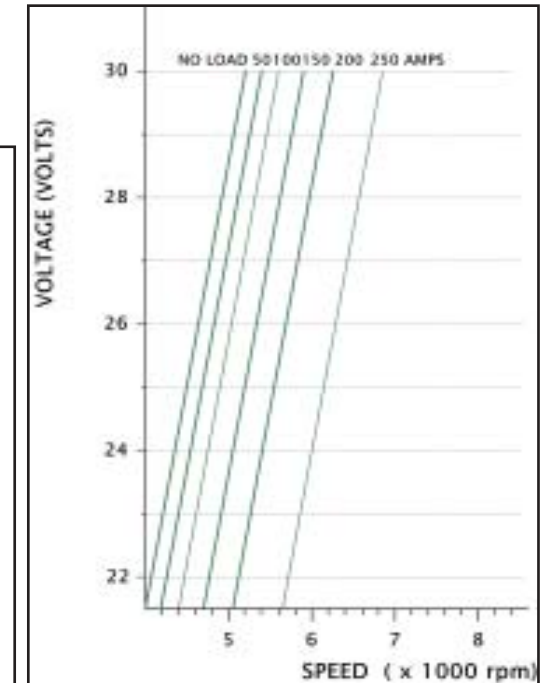
PRODUCT SPECIFICATIONS:

LENGTH:	10.55 INCHES	MAXIMUM OVERSPEED:	14,000 RPM
DIAMETER:	5.52 INCHES	TYPICAL STARTER OUTPUT AT 1000 RPM WITH 20V INPUT:	8.0 HP
WEIGHT (APPROXIMATE):	31.6 LBS	MAXIMUM OPERATING ALTITUDE:	35,000 FT
RATED OUTPUT:	7.5 kW	MAXIMUM STATIC TORQUE:	1500 IN-LB.
RATED TERMINAL VOLTAGE:	30 V DC	OVER HUNG MOMENT:	150 IN-LB MAX.
COOLING:	BLAST-COOLED WITH FAN	RATED START LOCKED ROTOR TORQUE:	20 FT.-LB 500 AMPS 12 V MAX.
CONT. LOAD WITHIN SPEED RANGE:	250 AMPS	MAXIMUM ALLOWABLE START CURRENT & VOLTAGE:	1200 AMPS 28 V
GENERATOR MODE SPEED RANGE:	6,900-12,000 RPM	EQUALIZING VOLTAGE AT RATED LOAD CURRENT:	1.49 -1.97 V
MINIMUM SPEED:	6,200 RPM 26 V 250 AMPS	RESISTANCE RANGE IN SERIES WITH THE SHUNT FIELD:	0.5 - 35
MINIMUM SPEED FOR REGULATION:	6,900 RPM 30 V 250 AMPS	ALLOWABLE BRUSH WEAR:	0.625 IN.
MAXIMUM SPEED FOR REGULATION:	13,000 RPM	ALLOWABLE COMMUTAR WEAR:	0.200 IN.

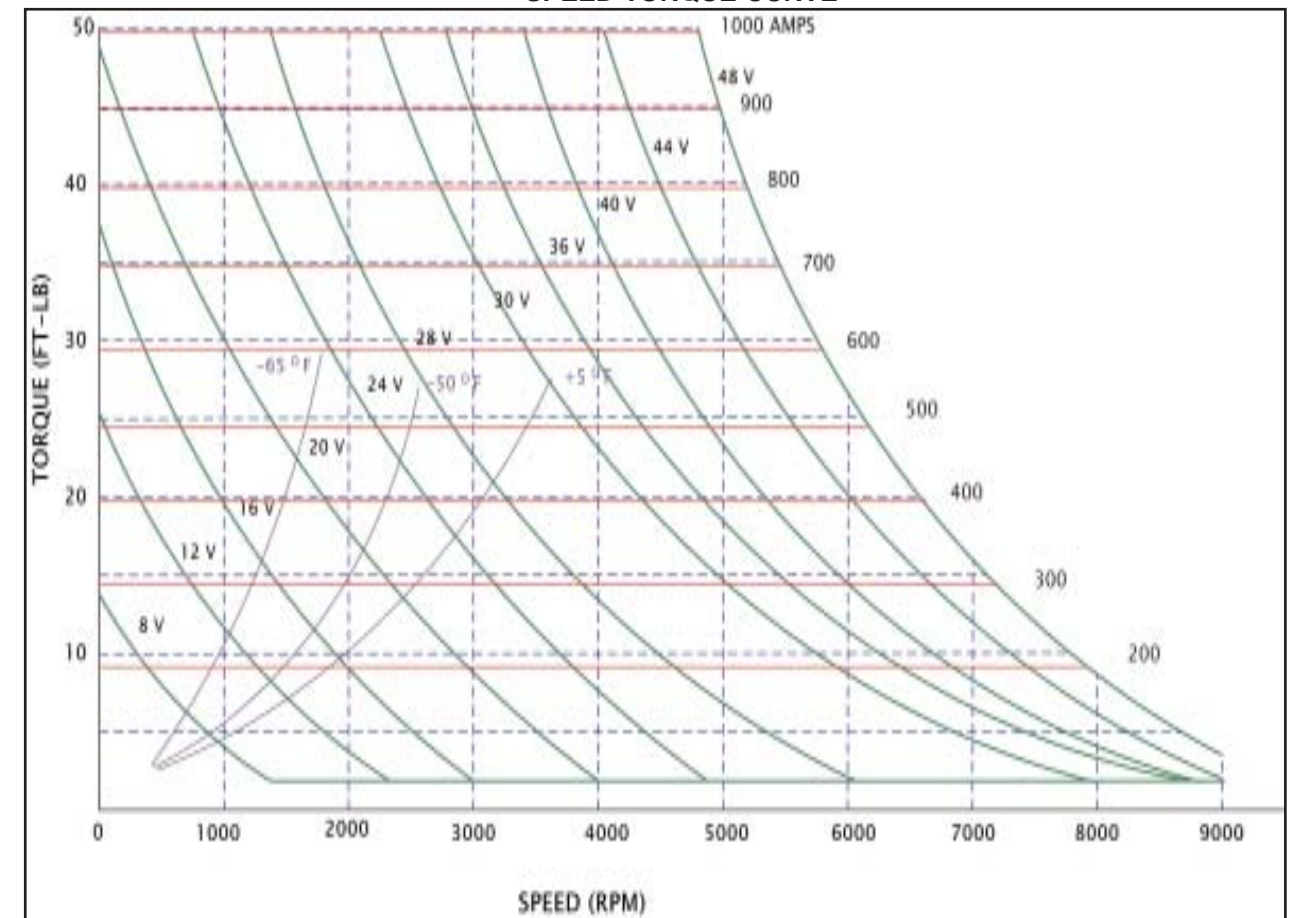
250 AMP SERIES OUTLINE



SPEED LOAD CURVE



SPEED TORQUE CURVE





APC 300SGL SERIES GENERATORS

The 300SGL AMP series starter-generators were designed for the starting of turbine engines. This starter-generator is used as an engine-driven source of DC power and are normally rated at 28 volts, 300 amperes over a speed range of 7,200-12,000 rpm.

Interpole and compensating winding are provided in the negative circuit to prevent field distortion and insure favorable commutation conditions.

TYPICAL AIRCRAFT APPLICATIONS:

AERMACHHI: S211 TRAINER
 BEECH: 1900, 1900D
 CESSNA: CITATION 560, ENCORE, EXCEL, CJ1, CJ2, & APU
 AGUSTA: AB139
 P&WC: UH-1 RE-ENGINE
 BASLER: DC-3 TURBINE CONVERSION
 DEHAVILLAND: DASH 8-100, 200, 300
 PZL: 130
 IBIS: AE270



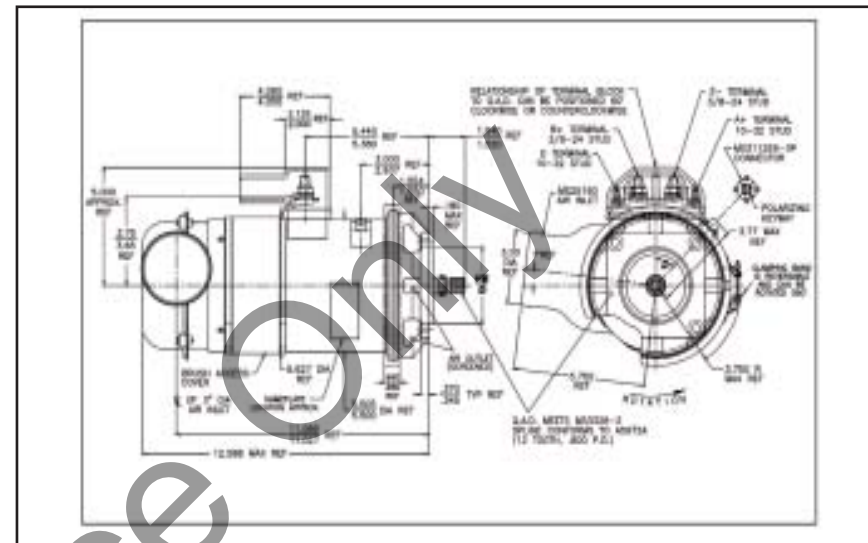
DESIGN FEATURES:

- Super precision bearings are carefully selected and packed with high temperature grease to fit application as needed.
- Wedge type armature construction and steel banding insure safe over speed condition.
- Armature conductors are silver brazed to the commutator risers for maximum durability.
- Improved drive shaft and damper are designed for longer life.
- Dynamic balancing to 5 grain-inches is performed on each armature and fan.
- Cast aluminum axial fan provides more cooling air throughout entire speed range and eliminates blade flattening at high speed.
- Latest high temperature insulating materials used for longer life.
- Armatures and field coils are vacuum impregnated to insure maximum insulation performance.

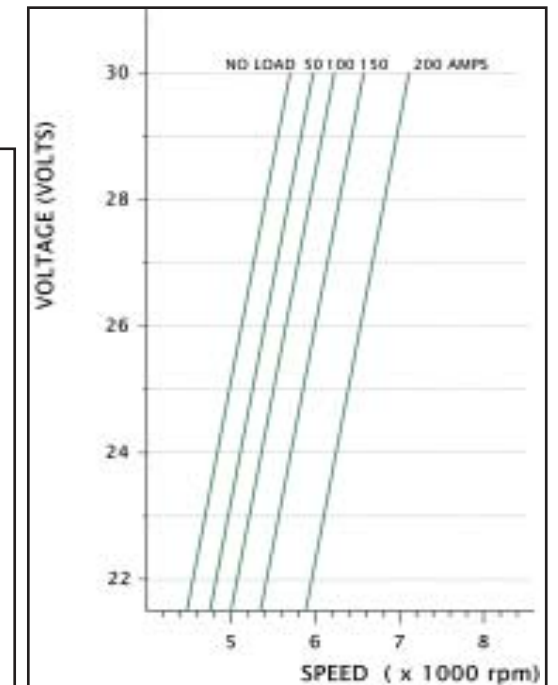
PRODUCT SPECIFICATIONS:

LENGTH:	12.25 INCHES	MAXIMUM OVERSPEED:	14,000 RPM
DIAMETER:	5.52 INCHES	TYPICAL STARTER OUTPUT AT 1000 RPM WITH 20V INPUT:	9.8 HP
WEIGHT (APPROXIMATE):	32 LBS	MAXIMUM OPERATING ALTITUDE:	55,000 FT
RATED OUTPUT:	9 kW	MAXIMUM STATIC TORQUE:	1500 IN-LB.
RATED TERMINAL VOLTAGE:	28 V DC	OVER HUNG MOMENT:	149 IN-LB MAX.
COOLING:	BLAST-COOLED WITH FAN	RATED START LOCKED ROTOR TORQUE:	20 FT.-LB 800 AMPS 10 V MAX.
CONT. LOAD WITHIN SPEED RANGE:	300 AMPS	MAXIMUM ALLOWABLE START CURRENT & VOLTAGE:	1700 AMPS 28 V
GENERATOR MODE SPEED RANGE:	7,200-12,000 RPM	EQUALIZING VOLTAGE AT RATED LOAD CURRENT:	1.49 -1.97 V
MINIMUM SPEED:	6,800 RPM 28 V 300 AMPS	RESISTANCE RANGE IN SERIES WITH THE SHUNT FIELD:	0.5 - 35
MINIMUM SPEED FOR REGULATION:	7,200 RPM 30 V 300 AMPS	ALLOWABLE BRUSH WEAR:	0.700 IN.
MAXIMUM SPEED FOR REGULATION:	13,000 RPM	ALLOWABLE COMMUTAR WEAR:	0.200 IN.

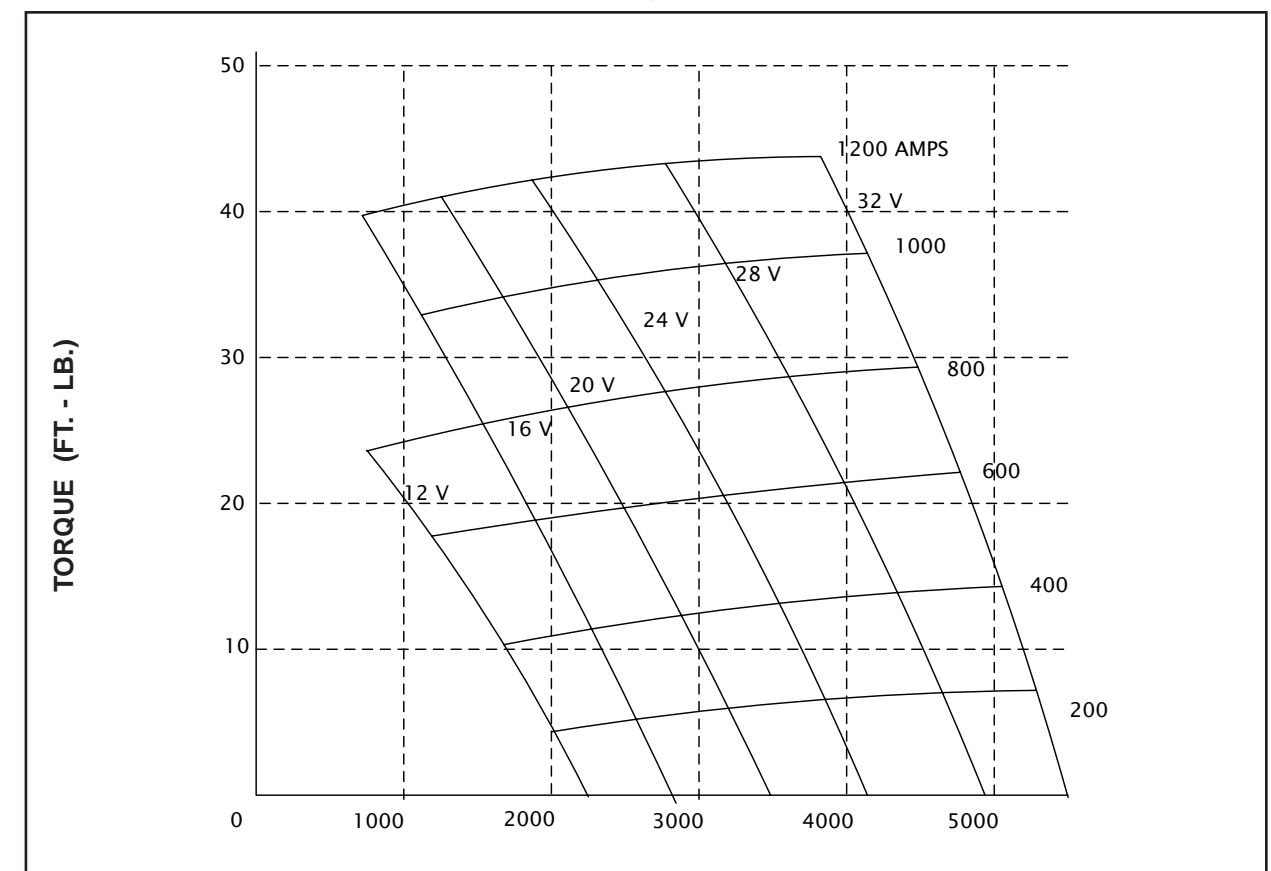
300 AMP SERIES OUTLINE



SPEED- LOAD CURVE



SPEED- TORQUE CURVE





APC 300SG SERIES GENERATORS

The 300SG AMP series starter-generators were designed for the starting of turbine engines. This starter-generator is used as an engine-driven source of DC power and are normally rated at 28 volts, 300 amperes over a speed range of 7,200-12,000 rpm.

Interpole and compensating winding are provided in the negative circuit to prevent field distortion and insure favorable commutation conditions.

TYPICAL AIRCRAFT APPLICATIONS:

CESSNA: CITATION 650 & APU
 FAIRCHILD: METRO II,III,IV,V
 GENERAL ATOMICS: PREDATOR B
 CASA: 212
 HINDUSTAN: D0-228
 JETSTREAM: 31, 32
 MARSH AVIATION: OV10A CONV.



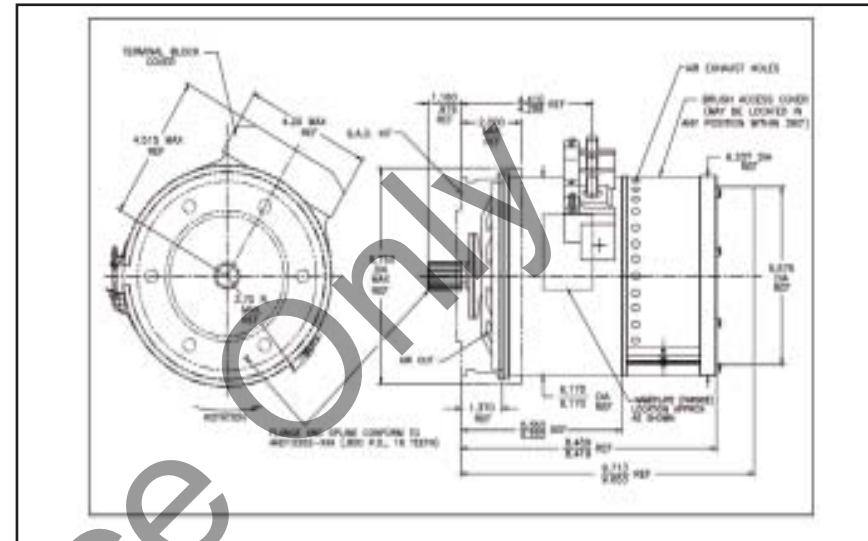
DESIGN FEATURES:

- Trailing type brush holders and instant filming altitude treated split brushes provide excellent commutation.
- Armature conductors are silver brazed to the commutator risers for maximum durability.
- Wedge type armature construction and steel banding insure safe over speed condition.
- Latest high temperature insulating materials used for longer life.
- Armatures and field coils are vacuum impregnated to insure maximum insulation performance.
- Dynamic balancing to 5 grain-inches is performed on each armature and fan.
- Super precision bearings are carefully selected and packed with high temperature grease to fit application as needed.
- Torsional vibration dampener is installed to eliminate torsional vibrations.

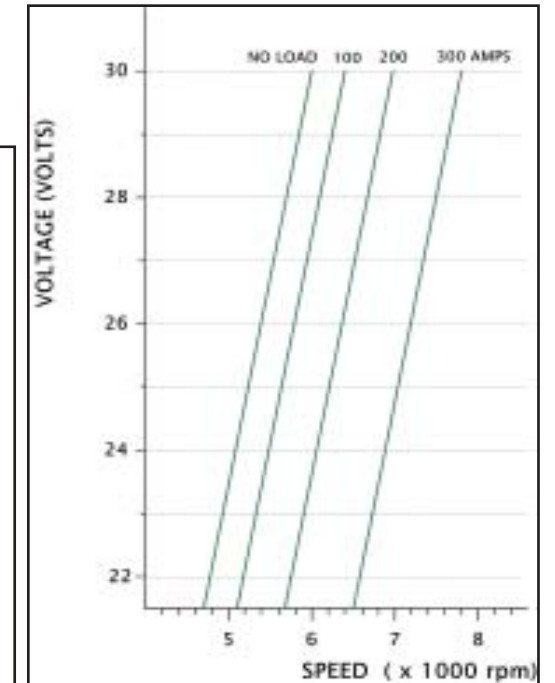
PRODUCT SPECIFICATIONS:

LENGTH:	12.25 INCHES	MAXIMUM OVERSPEED:	14,000 RPM
DIAMETER:	5.52 INCHES	TYPICAL STARTER OUTPUT AT 1000 RPM WITH 20V INPUT:	9.8 HP
WEIGHT (APPROXIMATE):	32 LBS	MAXIMUM OPERATING ALTITUDE:	55,000 FT
RATED OUTPUT:	9 kW	MAXIMUM STATIC TORQUE:	1500 IN-LB.
RATED TERMINAL VOLTAGE:	28 V DC	OVER HUNG MOMENT:	149 IN-LB MAX.
COOLING:	BLAST-COOLED WITH FAN	RATED START LOCKED ROTOR TORQUE:	20 FT.-LB 800 AMPS 10 V MAX.
CONT. LOAD WITHIN SPEED RANGE:	300 AMPS	MAXIMUM ALLOWABLE START CURRENT & VOLTAGE:	1700 AMPS 28 V
GENERATOR MODE SPEED RANGE:	7,200 -12,000 RPM	EQUALIZING VOLTAGE AT RATED LOAD CURRENT:	1.49 -1.97 V
MINIMUM SPEED:	6,800 RPM 28 V 300 AMPS	RESISTANCE RANGE IN SERIES WITH THE SHUNT FIELD:	0.5 - 35
MINIMUM SPEED FOR REGULATION:	7,200 RPM 30 V 300 AMPS	ALLOWABLE BRUSH WEAR:	0.700 IN.
MAXIMUM SPEED FOR REGULATION:	13,000 RPM	ALLOWABLE COMMUTAR WEAR:	0.200 IN.

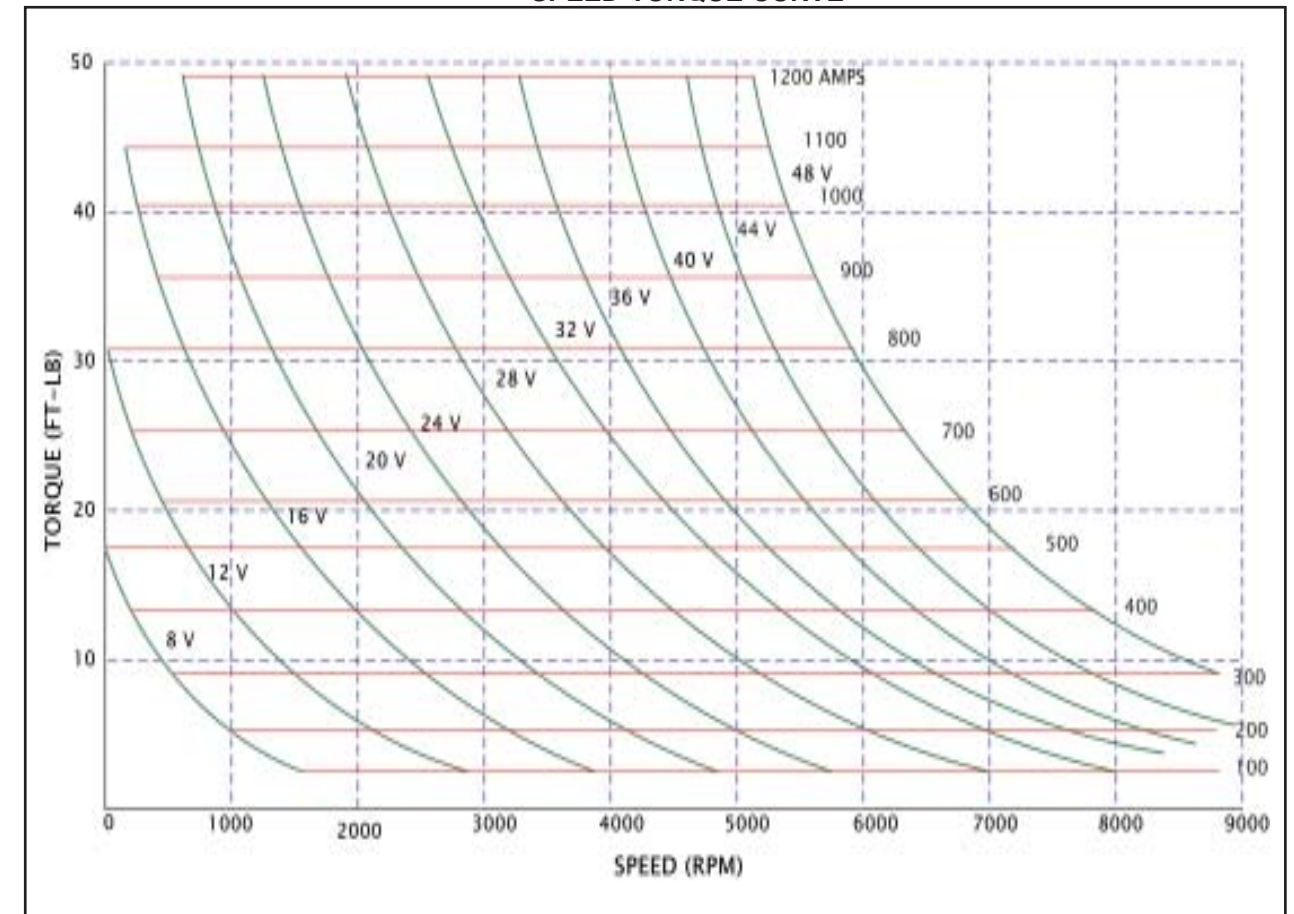
300 AMP SERIES OUTLINE



SPEED-LOAD CURVE



SPEED-TORQUE CURVE





APC 400SG SERIES GENERATORS

The 400SG AMP series starter-generators were designed for the starting of turbine engines. This starter-generator is used as an engine-driven source of DC power and are normally rated at 30 volts, 400 amperes over a speed range of 7,200-12,000 rpm.

Interpole and compensating winding are provided in the negative circuit to prevent field distortion and insure favorable commutation conditions.

TYPICAL AIRCRAFT INSTALLATIONS:

SAAB: 340
 RAYTHEON: HAWKER 700, 800, 800XP & APU
 CANADAI: CL215, 415 WATER-BOMBER
 BOMBARDIER: LEARJET-60 & APU
 NAL: SARAS
 DEHAVILLAND: DASH 8-400 & APU
 EMBRAER: EMB-120
 MARSH AVIATION: S2 TRACKER CONVERSION



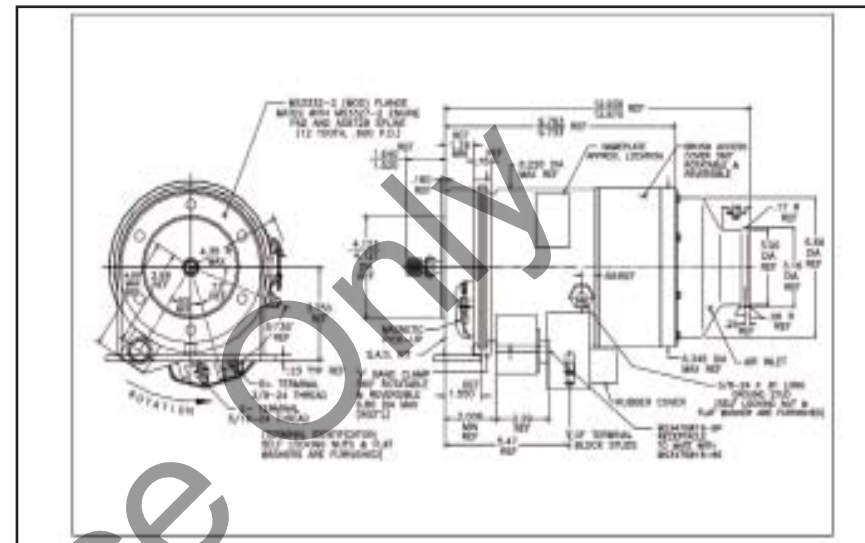
DESIGN FEATURES:

- Improved drive shaft and damper are designed for longer life.
- Dynamic balancing to 5 grain-inches is performed on each armature and fan.
- Armature conductors are silver brazed to the commutator risers for maximum durability.
- Latest high temperature insulating materials are used for longer life.
- Armatures and field coils are vacuum impregnated to insure maximum insulation performance.
- Super precision bearings are carefully selected and packed with high temperature grease to fit application as needed.
- Wedge type armature construction and steel banding insure safe over speed condition.
- Cast aluminum axial fan provides more cooling air throughout entire speed range and eliminates blade flattening at high speed.

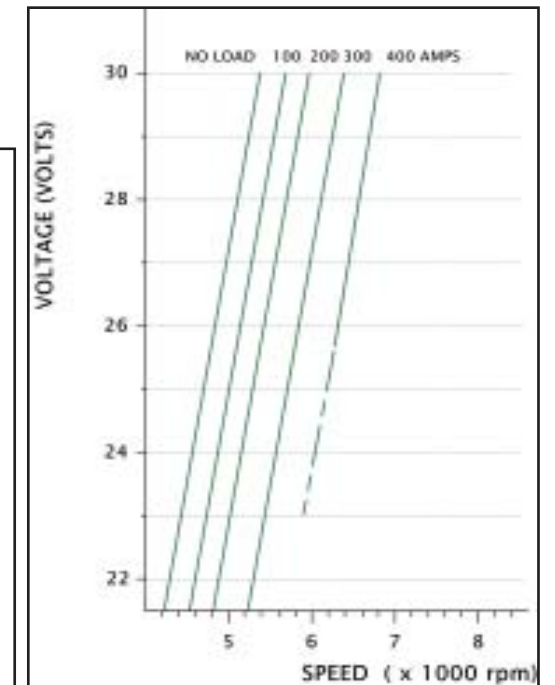
PRODUCT SPECIFICATIONS:

LENGTH:	12.90 INCHES	MAXIMUM OVERSPEED:	14,000 RPM
DIAMETER:	6.21 INCHES	TYPICAL STARTER OUTPUT AT 1000 RPM WITH 20V INPUT:	12.5 HP
WEIGHT (APPROXIMATE):	37.5 LBS	MAXIMUM OPERATING ALTITUDE:	55,000 FT
RATED OUTPUT:	12 kW	MAXIMUM STATIC TORQUE:	1600 IN-LB.
RATED TERMINAL VOLTAGE:	30 V DC	OVER HUNG MOMENT:	165 IN-LB MAX.
COOLING:	BLAST-COOLED WITH FAN	RATED START LOCKED ROTOR TORQUE:	20 FT.-LB 800 AMPS 12 V MAX.
CONT. LOAD WITHIN SPEED RANGE:	400 AMPS	MAXIMUM ALLOWABLE START CURRENT & VOLTAGE:	2000 AMPS 30 V
GENERATOR MODE SPEED RANGE:	7,200-12,000 RPM	EQUALIZING VOLTAGE AT RATED LOAD CURRENT:	1.49 -1.97 V
MINIMUM SPEED:	6,800 RPM 28 V 400 AMPS	RESISTANCE RANGE IN SERIES WITH THE SHUNT FIELD:	0.5 - 35
MINIMUM SPEED FOR REGULATION:	7,200 RPM 30 V 400 AMPS	ALLOWABLE BRUSH WEAR:	0.700 IN.
MAXIMUM SPEED FOR REGULATION:	13,000 RPM	ALLOWABLE COMMUTAR WEAR:	0.200 IN.

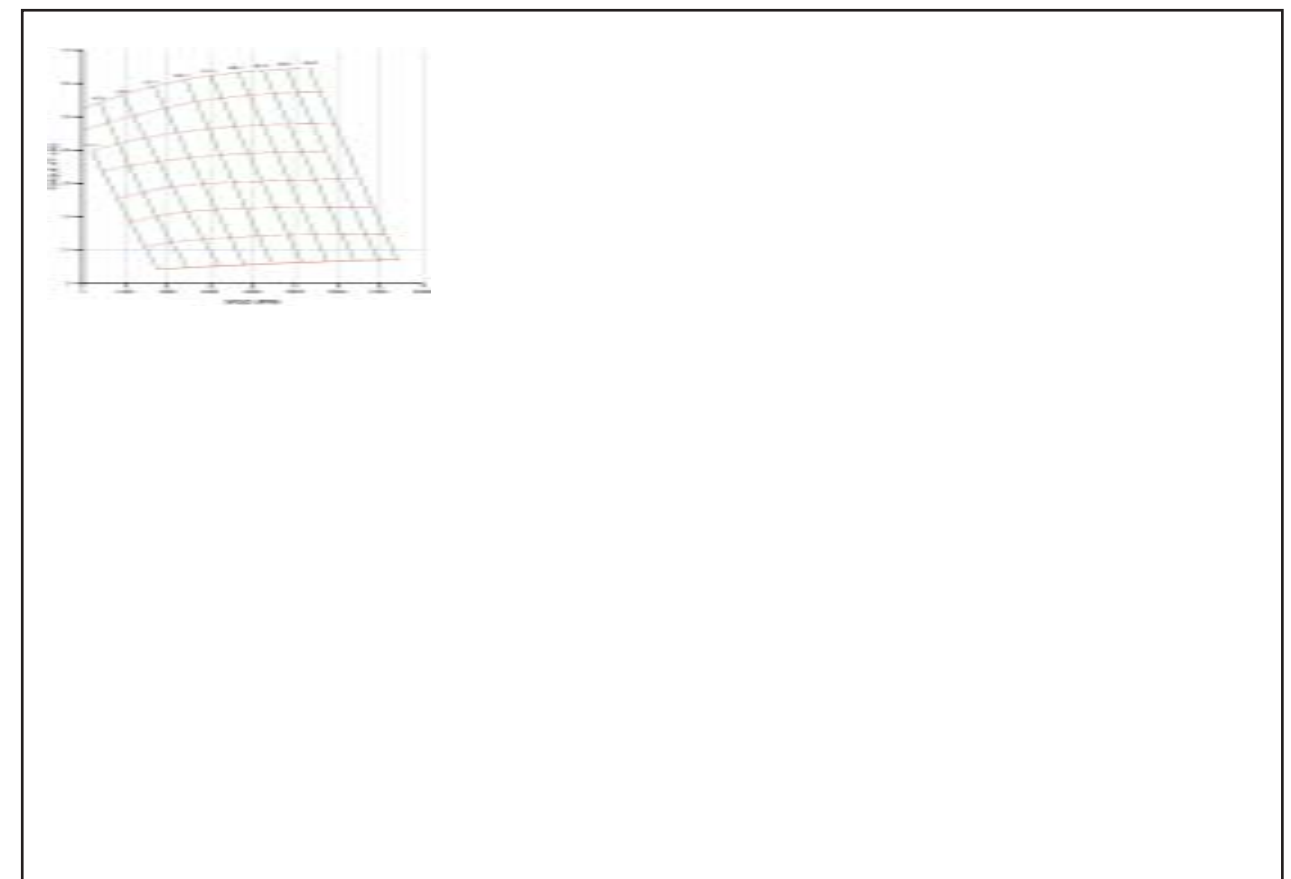
400 AMP SERIES OUTLINE



SPEED-LOAD CURVE



SPEED-TORQUE CURVE



APC FACTORY OVERHAULS

APC continues its efforts in customer satisfaction and product performance long after our generators are in use. APC's overhaul process is extremely thorough and precise, as well as affordable. APC can also upgrade your starter generator to our XL Series, during the overhaul. Typically, TBOs for our starter generators are 1,000 hours. The overhaul process ensures extended life of the generator and is performed by skilled APC-trained technicians on site, or at an APC authorized repair station utilizing state-of-the-art overhaul techniques and equipment. The average turn-around time for starter-generator overhauls is 5-6 business days.



APC has electrical and mechanical engineers as well as a quality control department on site, monitoring the entire overhaul process. Our generators are manufactured and assembled, mostly by the same employees who perform the overhauls. The standards by which the overhaul process adheres to, are the same standards that newly manufactured generators are subject to. By following these strict guidelines, APC starter generators that have undergone a complete and inspected overhaul, can perform for another 1,000 hours or more.

When a generator needs to be overhauled, many steps are taken towards its completion. This process begins with an initial inspection when the generator is received. The generator is checked in, inspected, documented and sent to the overhaul dept. It is then broken down, and its parts are serial numbered. This ensures that there is no mixing of parts, and for traceability of our generators. This also allows APC to track and validate information on all of its generators, including their performance and reliability in the field.



Each major component goes through its own overhaul process. These major components are replaced or refurbished to new condition, during the overhaul procedure. These components include the terminal block and fan, brushes, springs and spring holders, bearings, armatures, stators, commutator/end bells, drive shafts, dampener plate, and friction discs, etc. The armature is re-cut and re-balanced, the stator is completely re-sealed with new varnish, which is standard in the overhaul procedures. After all the necessary parts are overhauled, the generator is ready to be re-assembled.

Once the generator overhaul process is complete and it is reassembled, it is 100% tested. The product must be validated through Acceptance Test Procedures (ATP) and pass the final inspection policies strictly adhered to by our Quality Assurance Dept. After the final inspection is passed, the generator is carefully packed and prepared for shipping. The generator is now prepared to be sent to back to the customer.

After the complete inspection process is approved, the generator is then issued a proper FAA-8130 tag and the generator is placed in a protective bag. Each overhauled generator is specially packaged per commercial packaging specifications and/or customer requirements, and to prevent damage during shipping. Once packaged, the product is delivered by the best means possible or per customer specifications or instructions. When our customers receive their generators overhauled by APC, they can expect another 1000 hours of reliable performance. For more information on Aircraft Parts Corp. or our overhaul process, please contact us toll-free at 1-877-4APCMFG/(1-877-427-2634).

APC REPAIR STATIONS:

UNITED STATES - AIRCRAFT PARTS CORP.
160 Finn Court
Farmingdale, N.Y. 11735
Tel: 631-249-3053
Fax: 631-293-4131

APC SERVICE CENTER
4611 W. Harry
Wichita, KS. 67209
Tel: 316-943-8600
Fax: 316-943-8603

FLITE COMPONENTS
2734 Burbank Street
Dallas, TX 75235-2603
Tel: 214-350-5996
Fax: 214-350-2849

FLIGHTCRAFT, INC.
7777 N.E. Airport Way
Portland, OR 97218
Tel: 503-331-4220
Fax: 503-331-4273

PETROLEUM HELICOPTERS
P.O. Box 90808
Lafayette, LA 70509
Tel: 337-235-2452
Fax: 337-232-6537

CANADA - CANADIAN AERO ACCESSORIES
170 George Craig Blvd. N.E.
Calgary, Alberta T2E 7H2
Tel: 403-250-9077
Fax: 403-250-6841

S. AMERICA - AVIATION CENTER COMERCIO e SERVICOS LTD.
Av. Ayrton Senna, 2541
Aeroporto de Jacarepagua
Cep 22775-000
Rio de Janeiro, RJ Brazil
Tel: 55-21-2431-2505
Fax: 55-21-3325-9115

UNITED KINGDOM - AIRCRAFT COMPONENT SERVICES/(AAR)-LONDON
35 Willow Lane
Mitcham, Surrey CR4-4UQ
United Kingdom
Tel: 44-2086-402-225
Fax: 44-2086-859-247

CSE AVIATION
Oxford Airport, Kidlington
Oxford OX5 1RA, England
Tel: 44-1865-844-200
Fax: 44-1865-379-123

EUROPE - EADS SOGERMA SERVICES
Aéroport de Bordeaux-Mérignac
B. P. 2
33701 Mérignac CEDEX
France
Tel: 33 5 56 55 40 00
Fax: 33 5 56 55 28 37

AIRCRAFT COMPONENT SERVICES/(AAR)-AMSTERDAM
Kruiweg 705
2130 AB Hoofddorp
The Netherlands
Tel: 31-20-655-22-22
Fax: 31-20-653-47-77

RUAG AEROSPACE SERVICES GmbH
P.O. Box 1253
82231 Wessling
Germany
Tel: 49-8153/30-2706
Fax: 49-8153/30-2148

NORTHERN EUROPE - PATRIA OSTERMANS AERO AB
Box 116
S-190 46 Stockholm-Arlanda
Sweden
Tel: 46-8-593-787-00
Fax: 46-8-593-787-95

ASIA - C & A AVIATION (PTE) LTD.
Bldgs 110/143
East Camp, Seletar Airfield
Singapore, 798370
Tel: 65-6481 2233
Fax: 65-6481 0827

SANTOKU AVIATION ELECTRIC
14-5 Higashi-kojiya 2 chome
Ohta-ku, Tokyo
144-0033, Japan
Tel: 81-3-3745-7711
Fax: 81-3-3745-0151

AUSTRALIA - AEOS - AIRCRAFT EQUIPMENT OVERHAUL & SALES, PTY. LTD.
29 Norman Street- Peakhurst
Sydney, New South Wales
2210 Australia
Tel: 61-2-8525-6444
Fax: 61-2-9534-3630

AEROLEC
Hangar 8, Kittyhawk Lane
Parafield Airport
Parafield, 5106 S. Australia
Tel: 61-8-8258-2013
Fax: 61-8-8285-6788

APC DISTRIBUTORS: UNITED STATES - PERKINS AEROSPACE SUPPLY
P.O. Box 517
Glen Oaks, NY 11004
Tel: 516-437-4110
Fax: 516-437-3930

FLITE COMPONENTS
2734 Burbank Street
Dallas, TX 75235-2603
Tel: 214-352-9751
Fax: 214-357-9912

PETROLEUM HELICOPTERS
P.O. Box 90808
Lafayette, LA 70509
Tel: 337-235-2452
Fax: 337-232-6537

PRECISION HELI PARTS
495 Lake Mirror Rd. #800G
Atlanta, GA 30349
Tel: 404-768-9090
Fax: 404-768-9006

SEATTLE AERO
12410 S.E. 32nd Street
Bellevue, WA 98005
Tel: 425-643-4220
Fax: 425-746-9517

AAR DISTRIBUTION
One AAR Place
1100 Wood Dale Rd.
Wood Dale, IL 60191
Tel: 630-227-2000
Fax: 630-227-5589

AIRCRAFT COMPONENT SERVICES
330 S. E. 15th Street
Pompano Beach, FL 33060
Tel: 954-781-0398
Fax: 954-781-0398

AVIALL
P.O. Box 619048
2750 Regent Blvd.
Dallas, TX 75261-9048
Tel: 1-800-AVIALL-1
Fax: 972-586-1982
Contact: Skelly Joe

CANADA: CANADIAN AERO ACCESSORIES
170 George Craig Blvd. N.E.
Calgary, Alberta T2E 7H2
Tel: 403-250-9077
Fax: 403-250-6841

AVIALL
657 Barnes Rd., Suite #1
Enfield, Nova Scotia B2T 1K3
Tel: 902-873-4646
Fax: 902-873-3932

AVIALL
907 Cure-Boivin
Boisbrant, Quebec J7G 2S8
Tel: 450-437-3844
Fax: 450-437-3997

AVIALL
7150 Torbram Road
Mississauga, Ontario L4T 3Z8
Tel: 905-676-1695
Fax: 905-676-9046

AVIALL
4840 Cowley Crescent
Vancouver Int'l Airport
Richmond, British Columbia
V7B 1C1
Tel: 604-270-6144
Fax: 604-270-3115

AVIALL
2073 Logan Avenue-Unit 9
Winnipeg, Manitoba R2R 0J1
Tel: 204-775-8004
Fax: 204-786-1556

W. G. COX AVIATION SUPPLIES
1000 Stevenson Road N.
Oshawa Municipal Airport
Oshawa, Ontario L1J 5P5
Tel: 905-728-4741
Fax: 905-723-7698

EUROPE - SUPAIR AIRLINE SUPPORT SVCS
Parallelstrasse 5
D-22851 Norderstedt
Germany
Tel: 49-40-529-8870
Fax: 49-40-529-8876

AVIALL
Aviall Hoeksteen 153
2132 MX Hoofddorp
Amsterdam, The Netherlands
Tel: 31-20-653-1126
Fax: 31-20-653-1841

NORTHERN EUROPE - PATRIA OSTERMANS AERO AB
Box 116
S-190 46 Stockholm-Arlanda
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Tel: 46-8-593-787-00
Fax: 46-8-593-787-95

SATAIR A/S
Amager Ladevej 147A
DK-2770 Kastrup
Denmark
Tel: 45-3247-0100
Fax: 45-3251-3434

ASIA - AVIALL PTE. LTD.
2 Loyang Lane #05-02
Singapore 508913
Tel: 65-6542-5420
Fax: 65-6542-8222

AVIALL AIRSTOCKS LTD.
604 New Bright Building
11 Sheung Yuet Road
Kowloon, Hong Kong
Tel: 852-2318-0233
Fax: 852-2318-9222

AUSTRALIA - AVIAQUIP
41 Kembla Street
Cheltenham, Victoria
3192 Australia
Tel: 61-3-9585-1211
Fax: 61-3-9585-1837

NEW ZEALAND - AVIALL NEW ZEALAND LTD.
P.O. Box 73-055
Cyril Kay Road
Auckland Intl Airport
Auckland, New Zealand
Tel: 64-9-275-0571
Fax: 64-9-275-6569

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