

# G3500

Cat® Engines for Gas Compression Applications



# G3500 ENGINES

## THE POWER IS IN YOUR HANDS

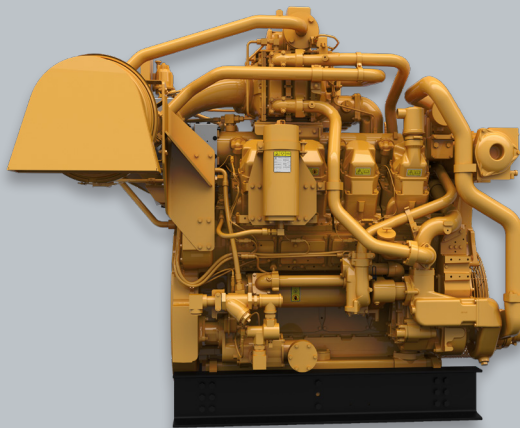
Put a Cat® G3500 engine on the job, and you'll put the entire operation on a whole new level. These versatile medium speed gas engines don't take long to demonstrate why they're the best selling in their class — and how they live up to the Caterpillar name. Their renowned performance and reliability are matched by their incredible efficiency.

The spark-ignited G3500 engine is designed with flexibility in mind offering both lean-burn and rich-burn designs featuring ADEM™ A3 and ADEM™ A4 system technology. This system provides integrated ignition, speed governing, protection and control, as well as detonation-sensitive variable ignition timing. Integrated air/fuel ratio control is standard on most models.

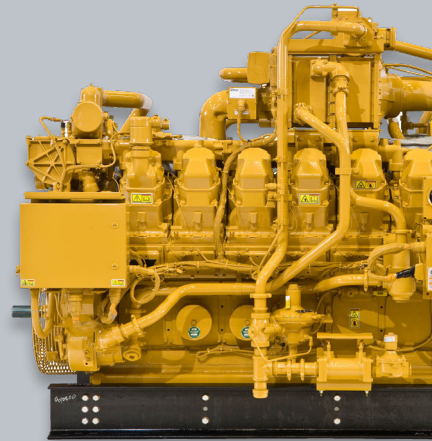
AT THE CORE  
OF YOUR  
OPERATION  
  
AND THE  
FOREFRONT OF  
TECHNOLOGY

# PROVEN IRON

Cat® G3500 engines offer more of what you want —



G3508J




G3512B

## HISTORICALLY STRONG

The Cat® 3500 series is a legacy over 35 years in the making.

This extremely proven and flexible product is the muscle behind the toughest, most unforgiving applications in rail, mining, marine and oil & gas industries.

**190K+**  
**ENGINES**  
**BUILT** 

  
**250M+**  
**TOTAL Hp**

**200B+**  
**ACCUMULATED**  
**FIELD HOURS** 

**1985**  
Magneto

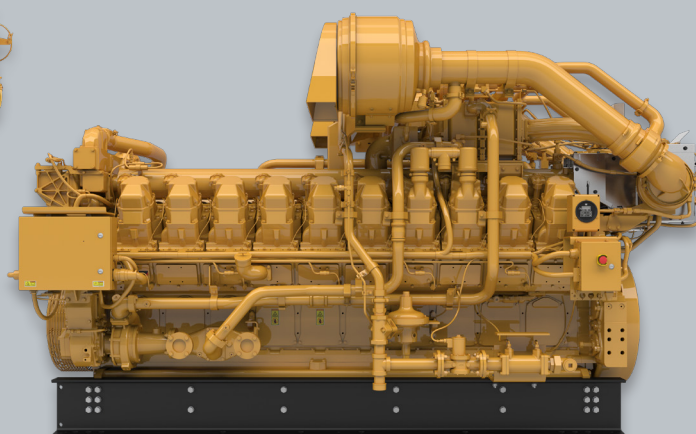
**1992**  
EIS System

**2006**  
ADEM A3

uptime, versatility, efficiency, safety – at a lower cost with fewer emissions.



**G3516J**



**G3520J**

## DEPENDABLE RATED POWER

With a wide power range the G3500 engine family offers the versatility to meet your application needs. G3500 electronics assure longer overhaul intervals, reduced maintenance, and extended reliability.

### G3500 ENGINES — CONTINUOUS

	1400 rpm		1200 rpm	
	bkW	bhp	bkW	bhp
<b>G3508 TA</b>	—	—	391	524
<b>G3508 LE</b>	500	670	—	—
<b>G3508B*</b>	515	690	—	—
<b>G3508J*</b>	515	690	—	—
<b>G3512 TA</b>	—	—	589	790
<b>G3512 LE</b>	749	1005	642	860
<b>G3512B*</b>	772	1035	—	—
<b>G3512J</b>	772	1035	—	—

\* 0.5 and 1.0 g/bhp-hr NO<sub>x</sub>

	1400 rpm		1200 rpm	
	bkW	bhp	bkW	bhp
<b>G3516 NA</b>	—	—	492	660
<b>G3516 TA</b>	1029	1380	—	—
<b>G3516 LE</b>	1000	1340	858	1150
<b>G3516B</b>	1029	1380	—	—
<b>G3516J</b>	1029	1380	—	—
<b>G3520B</b>	1286	1725	1104	1480
<b>G3520J</b>	1286	1725	1104	1480

**NA** = Naturally Aspirated  
**TA** = Turbocharged/Aftercooled  
**LE** = Low Emission

**2007**  
NSPS

**2009**  
ULB

**2016**  
G3500J

**2017**  
ADEM A4

**2018**  
G3500 TA

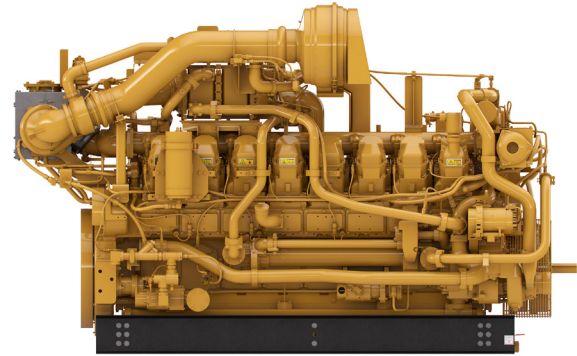
# IN THE FIELD

## Exceeding Expectations

The Cat® G3516 TA gas engine reliability is unrivaled. Performing with a power rating of 1029 kW (1380 bhp) at 1400 rpm, this addition to the Caterpillar 3500 engine family expands our gas compression product portfolio meeting customer needs.

The G3516 TA features include:

- A design built on the proven reliability and durability of the G3500 engine platform.
- Fully integrated air fuel ratio control.
- Rich Burn Technology that provides high fuel efficiency and low emissions output with customer supplied three way catalyst.
- Extended spark plug maintenance intervals.
- Improved ease of use with updated user interface, shutdown controls, and system diagnostics.



G3516 TA

## Customer Confidence

“ The best thing about this engine is how well the emissions have held stable over time. We’ve tried other rich burn engines in the past and definitely had struggles with compliance. The G3516 TA has been rock solid hitting these levels for so long. ”

Mark Davis, Technical Services Manager  
J-W Power Company

### Mechanical Reliability (Runtime %) J-W Power Company

Engine	Application	Driven Equipment	Average Load	Mechanical Availability	Date of Installation	Hours Accumulated through 5/1/2019
G3516 TA	Well Head Booster	Recip. Comp.	80%	99.78%	4/30/2014	40,655

### Mechanical Reliability (Runtime %) USA Compression Partners, LP

Engine	Application	Driven Equipment	Average Load	Mechanical Availability	Date of Installation	Hours Accumulated through 5/1/2019
G3516 TA	Well Head Booster	Ariel JGD/4	90%	99%	2/31/2014	40,100
G3516 TA	Well Head Booster	Ariel JGD/4	80%	99%	9/24/2013	41,875

# G3516TA

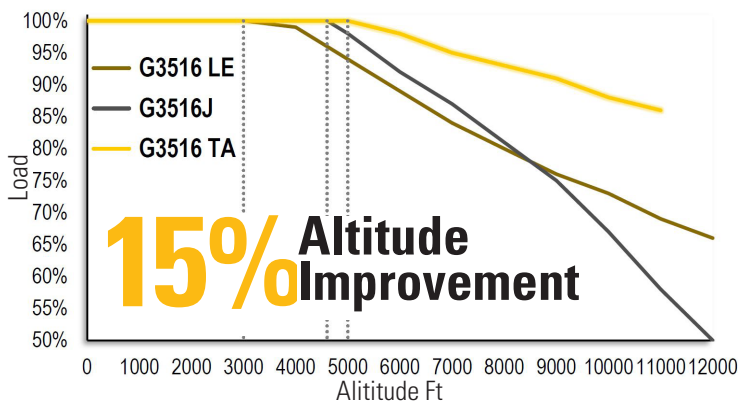
## Innovative Technology

### ADEM™ A4

The latest G3516 TA offering incorporates core engine design improvements in head and camshaft technology with an improved software recipe, powered by ADEM™ A4 ECM technology. The result is increased power, better altitude capability, improved fuel tolerance, and lower emissions, while making it easier to package with on engine thermostats and a single exhaust connection point.

## High Altitude Performance

G3500 engines with A4 have improved altitude/ temperature capability that allows them to run at higher altitudes at full power before derate. The G3516TA takes this capability to another level with the highest performance yet. Providing 15% altitude improvement without derate as compared to the previous model.



Altitude capability comparison between Cat G3516 engines @ 100F

G3516TA on site J-W Power Company

## Proven Iron

	G3516							
	G3516 w/EIS	G3516 w/A3	G3516B 1.0g NOx	G3516B 0.5g NOx	G3516 LE Upgrade 1.0g NOx	G3516 LE Upgrade 0.5g NOx	G3516J 0.5g NOx	G3516 TA (Rich Burn)
Performance Data	DM5155	DM8618	EM1749	EM1748	DM9401	DM9400	EM1495	EM1440
Ambient Conditions	100°F Inlet Air Temp, Natural Gas Fuel (905 Btu/scf)							
Max Altitude, Derate	1700 ft	1700 ft	6000 ft	4000 ft	5400 ft	3800 ft	4600 ft	5000 ft
Max Rating, bhp @ 1400	1340 bhp	1340 bhp	1380 bhp	1380 bhp	1340 bhp	1340 bhp	1380 bhp	1380 bhp
Fuel Consumption @ 100% Load (ISO 3046/1)	7402 Btu/bhp.hr	7405 Btu/bhp.hr	6767 Btu/bhp.hr	7023 Btu/bhp.hr	7806 Btu/bhp.hr	8196 Btu/bhp.hr	7234 Btu/bhp.hr	7,300
Emissions - NOx	1.5 Nominal	2 NTE	1.0 NTE	0.5 NTE	1.0 NTE	0.5 NTE	0.5 NTE	*0.15-1 NTE
Cooling System	JW+OC, AC	JW+OC, AC	JW+OC, AC1, AC2	JW+OC, AC1, AC2	JW+OC, AC1, AC2	JW+OC, AC1, AC2	JW+OC, AC1, AC2	JW+OC, AC1, AC2
High Temp Circuit Total HR (Btu/min)	53141	53863	39731	38924	58862	63392	55131	56367
Low Temperature Circuit Total HR (Btu/min)	10943	10024	4407	5251	4369	4861	5317	17018
Heat Rejection to Jacket Water (Btu/min)	41203	42115	23429	22629	39986	42188	37499	49196
Heat Rejection to Lube Oil (Btu/min)	6515	6281	4475	4475	5963	6292	4533	12393
Heat Rejection to AC Stage 1 (Btu/min)	10422	9547	7229	8250	7353	8986	8040	2064
Heat Rejection to AC Stage 2 (Btu/min)	—	—	4197	5001	4161	4629	5063	2038

For more information on Caterpillar engine models visit [engines.cat.com](http://engines.cat.com)

\*w/three way catalyst (engine out 12.5 NTE)

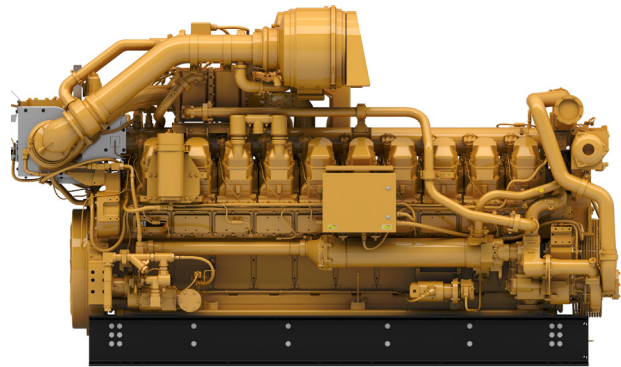
# IN THE FIELD

## Exceeding Expectations

The Cat® G3500J series outshines the competition. The new J series further expands our gas compression product portfolio, providing adaptable, high performance engines to meet our customers needs.

The G3500J series features include:

- A design built on the proven reliability and durability of the G3500 engine platform.
- Water cooled exhaust manifolds which significantly lowers surface temperature without sacrificing horsepower or emissions.
- Ultra Lean Burn Technology that provides low emissions output, high fuel efficiency and improved altitude capability.



G3520J

## Customer Confidence

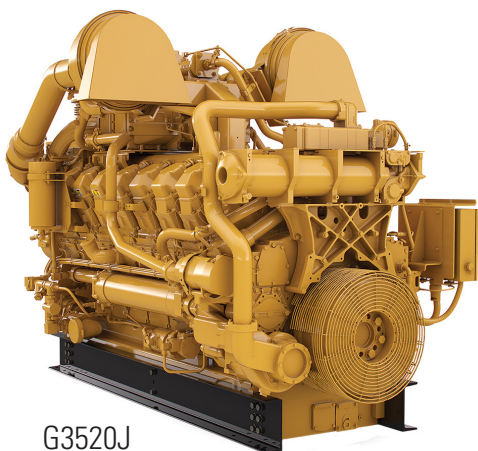
“ Since its introduction, the G3516J instantly became one of Kodiak’s flagship engine lines and makes up 27% of our fleet as of August of 2019. The J’s reliability, emissions performance, and increased fuel efficiency make it an easy sale to Kodiak’s customer base while at the same time allowing Kodiak to drive down its operating costs.

Craig Collins, EVP & General Counsel  
Kodiak Gas Services LLC

## Mechanical Reliability (Runtime %)

### Kodiak Gas Services LLC

Engine	Application	Frame	Average Load	Mechanical Availability	Date of Installation	Hours Accumulated through 5/1/2019
G3516J	Gathering to a Plant	JGT4	82%	99.98%	9/26/2018	12,345



G3520J

**HIGH**   
**EFFICIENCY**

 **LOW**  
**EMISSIONS**

# G3520J

## Fleet Performance

Specifications	G3520B	G3520J
Rated Speed	1,400	1,400
Rated Power (bhp)	1,725	1,725
Constant Torque	6499	6499
Max BMEP	186	186
BSFC (Btu/bhp hr)	7382	7241
Max. Altitude w/o derate @ 100F (ft)	3000	2723
Turndown @ rated torque, max alt.	25%	35%
Min. MN	14	15
Min. MN w/o derate	45	45
NOx [NTE]	0.5	0.5
CO [NTE]	2.22	2.22
VOC [NTE]	0.45	0.45

\*1200 RPM also available



Energy Transfer participated in the G3520J field follow and the performance of the Caterpillar G3520J engine has met all our expectations. Energy Transfer's selection of the G3520 was based on horsepower and the Cat reputation. The Caterpillar G3520J offers the most horsepower in the smallest package with the greatest operational flexibility for Energy Transfer. Energy Transfer is pleased with the performance and usability of this product, as well as the technical support provided by Caterpillar.



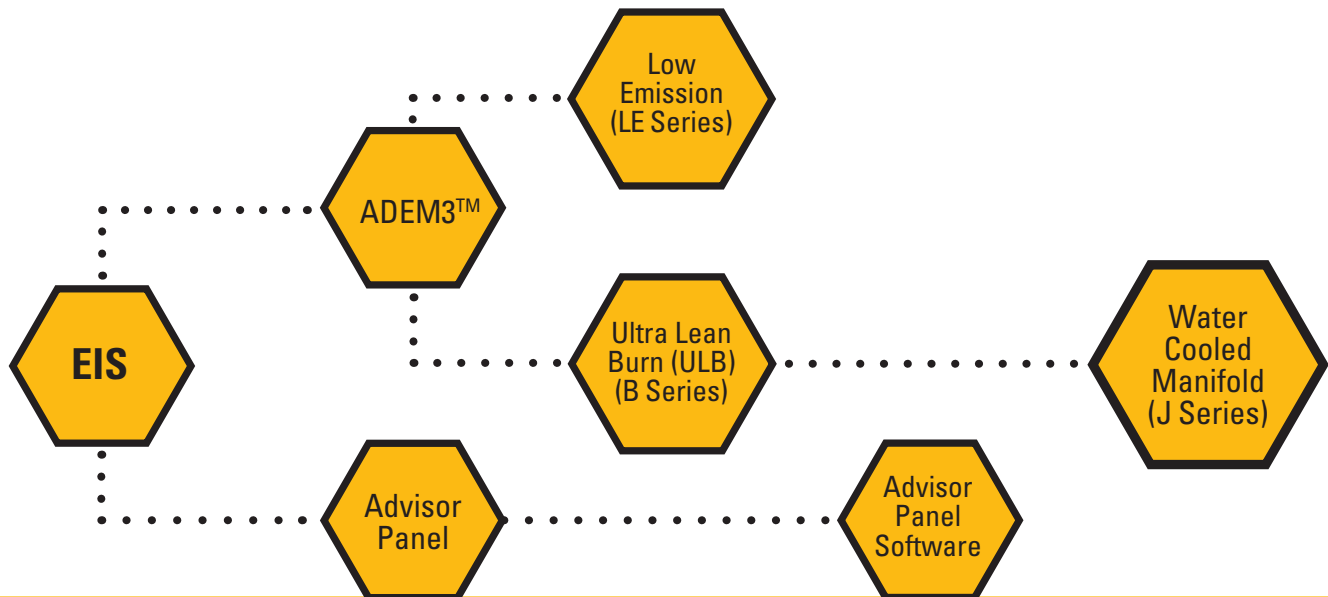
Donnie Wesneski Reliability Supervisor  
Energy Transfer Partners

## Energy Transfer



## Improving Your Fleet

Caterpillar offers a number of options to retrofit your older assets to the latest technology and lower emissions offerings. Whether you are looking for a low emissions upgrade kit or want to take a legacy G3500 with EIS controls to the latest and greatest G3500J model with ADEM ECM technology, Caterpillar has a solution for you.





## Caterpillar. Powerful Product, Powerful Partner.

The performance we promise is the performance you get. That's because our product support is just as strong as our product line. More than 2,200 Cat dealer outlets stand ready to fulfill your every

need — on every continent, every day. We understand that the work can't wait, so neither will you. Don't just invest in power, invest in a powerful solution — Cat gas engines.

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