

Joe W was this info transmitted to the Regional Tech mgrs?



JCN

To: MAIL KEYS:
2.40 A-E
2.45

Date: NOVEMBER 15, 1984

From: C.B. HOLMES

Office: CAC SERVICE ENGINEERING

Subject: REPLACEMENT OF 19D
SERIES MOTORS WITH
HIGH EFFICIENCY DESIGN

FRR

EE.R 84-2

Effective around February 1981, the 19D Series Motors were changed to the high efficiency design. Even though the styles are interchangeable, and the older styles made by Ideal Electric are still available, the new design develops more horsepower than older styles when using the same IKW resulting in reduced operating cost; thus the term high efficiency.

Before replacing an older style motor with a high efficiency motor, a few areas of concern must be addressed.

1. Most high efficiency motors have higher inrush currents than the older styles. This means that the starter contactors or even the starter size may have to be increased.
2. A high efficiency motor compared to an older style of equal size will draw less current at equal machine loads. This means that the overloads may have to be recalibrated and the signal resistor may have to be resized. This may not be necessary unless the resistor size will allow the maximum IKW of the new motor to be exceeded, or the overload setting causes them to trip during start-up.
3. When converting to high efficiency, both the rotor and stator must be changed. Therefore, the operating payback along with the determination of the life expectancy of the old component must be weighed against the cost of the new component (and possibly a new starter).

The following charts compare inrush currents (LRD) and minimum starter size for each type motor based on size and design voltage.

An asterisk in the minimum starter size column under old style motors warns that this size starter may not be capable of handling the inrush current for a high efficiency motor of the same size. In this case, compare the inrush current (LRD) with the maximum LRA for the actual starter involved. If not sure, contact the starter vendor.

If converting to high efficiency and the same size motor is not readily available from Service Parts but the next larger size is; compare the inrush for the larger motor to the existing starter size.

CBH/mg
Attachments

230 VOLTS							
OLDER STYLE MOTORS				HIGH EFF. MOTORS			
SIZE	LRD	LRS	MINIMUM STARTER SIZE	SIZE	LRD	LRS	MINIMUM STARTER SIZE
A2	1155	367	DP240	A2	1230	394	DP240
A3	1255	402	DP240	A3	1305	418	DP240
A4	1381	442	DP240 *	A4	1556	498	DP270
A5	1506	482	DP270	A5	1657	530	DP270
A6	1707	546	DP270 *	A6	2084	667	DP400
C2	2033	651	DP400	C2	2385	763	DP400
C3	2359	755	DP400 *	C3	3012	964	DP540
C4	2636	843	DP540	C4	3163	1012	DP540
C5	2837	908	DP540	C5	3263	1044	DP540
C6	3339	1068	DP540 *	C6	3665	1173	DP650
C7	3665	1173	DP650 *	C7	4443	1422	6YD
C8	3891	1245	6YD	C8	4167	1333	6YD
C9	4192	1341	6YD	C9	4468	1430	6YD
C10	5020	1606	6YD *	C10	5121	1639	DP1075

* = STARTER TOO SMALL FOR HIGH EFF. MOTOR CONVERSION, CHECK JOB RECORDS TO SEE IF A LARGER STARTER WAS USED.

460 VOLTS							
OLDER STYLE MOTORS				HIGH EFF. MOTORS			
SIZE	LRD	LRS	MINIMUM STARTER SIZE	SIZE	LRD	LRS	MINIMUM STARTER SIZE
A2	577	185	3YD	A2	615	197	3YD
A3	628	201	3YD	A3	678	217	3YD
A4	690	221	3YD *	A4	778	249	DP240
A5	753	241	DP240	A5	916	293	DP240
A6	853	273	DP240	A6	1042	333	DP240
C2	1016	325	DP240	C2	1167	374	DP240
C3	1180	378	DP240	C3	1305	418	DP240
C4	1318	422	DP240 *	C4	1519	486	DP270
C5	1418	454	4YD	C5	1443	462	4YD
C6	1669	534	DP270	C6	1707	546	DP270
C7	1832	586	DP400	C7	1757	562	DP270
C8	1945	623	DP400	C8	2071	663	DP400
C9	2096	671	DP400	C9	2247	719	DP400
C10	2510	803	DP400 *	C10	3125	1000	DP540

* = STARTER TOO SMALL FOR HIGH EFF. MOTOR CONVERSION, CHECK JOB RECORDS TO SEE IF A LARGER STARTER WAS USED.

575 VOLTS

OLDER STYLE MOTORS				HIGH EFF. MOTORS			
SIZE	LRD	LRS	MINIMUM STARTER SIZE	SIZE	LRD	LRS	MINIMUM STARTER SIZE
A2	462	148	3YD	A2	502	161	3YD
A3	502	161	3YD	A3	552	177	3YD
A4	552	177	3YD *	A4	602	193	DP180
A5	602	193	DP180 *	A5	793	254	DP240
A6	683	218	DP180 *	A6	853	273	DP240
C2	813	260	DP240 *	C2	994	318	4YD
C3	944	302	4YD	C3	1004	321	4YD
C4	1054	337	4YD *	C4	1265	405	DP270
C5	1135	363	4YD *	C5	1165	373	DP270
C6	1335	427	DP270	C6	1245	398	DP270
C7	1466	469	DP400	C7	1556	498	DP400
C8	1556	498	DP400	C8	1908	610	DP400
C9	1677	537	DP400	C9	1878	601	DP400
C10	2008	643	DP400 *	C10	2099	672	DP540

* = STARTER TOO SMALL FOR HIGH EFF. MOTOR CONVERSION, CHECK JOB RECORDS TO SEE IF A LARGER STARTER WAS USED.