LEHANE CENTRIFUGAL CLUTCHES

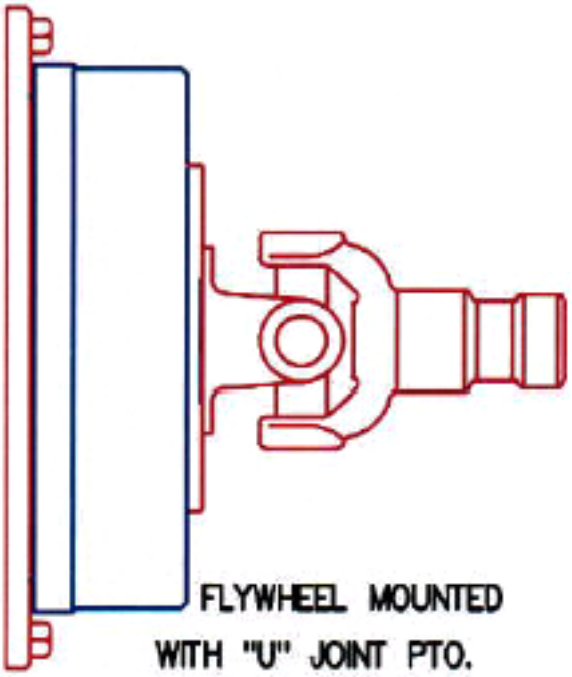
FM EXTREME DUTY CLUTCHES

TRANSMISSION CAPACITY UP TO 3000HP. (2238kW.)

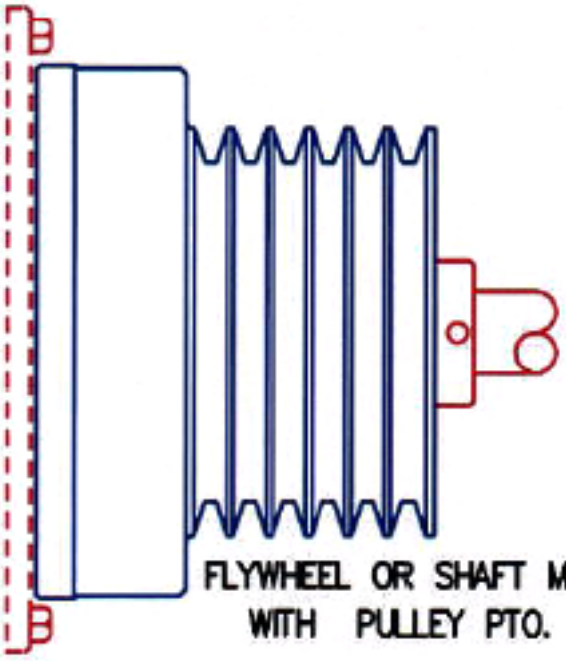
ENGINEERED FOR LIFE TIME SERVICE-- NO NEED FOR PERIODIC ADJUSTMENT

TOTAL AUTOMATIC OPERATION

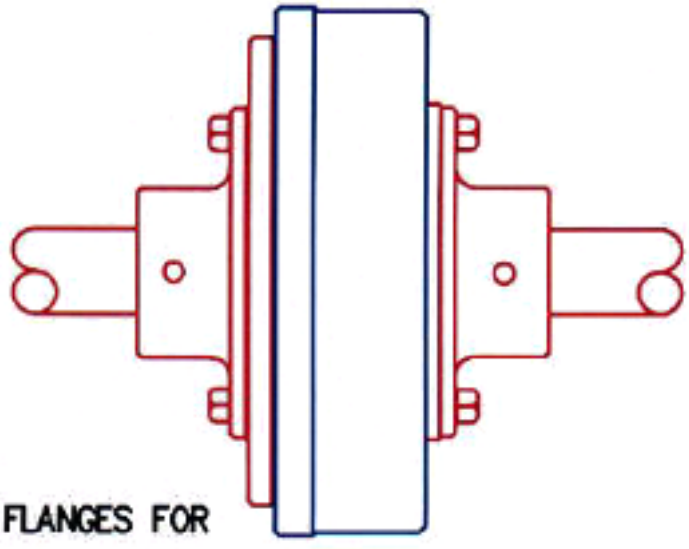
MAINTENANCE INSPECTION WITHOUT MAJOR DISASSEMBLY



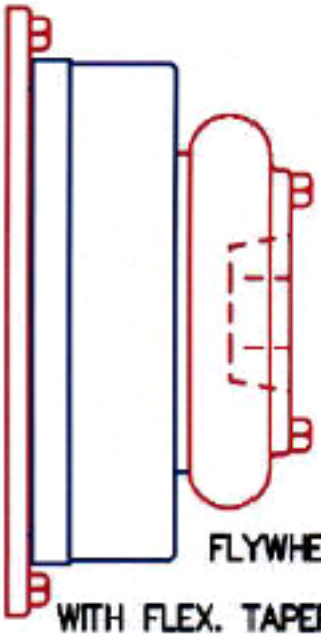
FLYWHEEL MOUNTED
WITH "U" JOINT PTO.



FLYWHEEL OR SHAFT MOUNTED
WITH PULLEY PTO.



FLANGES FOR
SHAFT MOUNTING



FLYWHEEL MOUNTED
WITH FLEX. TAPER LOCK PTO.

LEHANE CENTRIFUGAL CLUTCHES

FM EXTREME DUTY PUMP DRIVE CENTRIFUGAL CLUTCHES

UP 3000 HP. (2238kW)

THE "FM" RANGE OF CENTRIFUGAL CLUTCHES IS PROVING TO BE A SIMPLER AND MORE ECONOMICAL ALTERNATIVE THAN THE TRADITIONAL OVER CENTER MANUALLY OPERATED DISC CLUTCH.

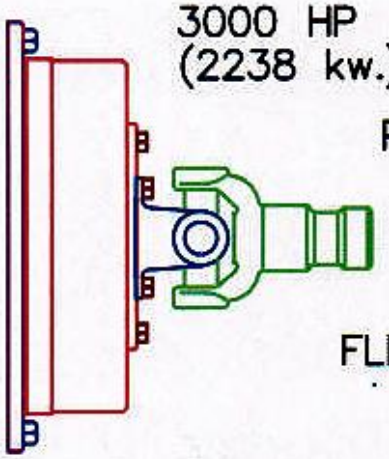
THE "FM" RANGE IS DESIGNED TO ALLOW THE DIESEL ENGINE TO WARM UP AT IDLE SPEED THEN SMOOTHLY AND AUTOMATICALLY AS THE ENGINE R.P.M IS INCREASED TO OPERATING R.P.M THIS FUNCTION CAN BE REMOTELY CONTROLLED BY TELE-COMMUNICATION WITH NO CLUTCH ENGAGING MECHANISM NECESSARY.
ANOTHER IMPORTANT FEATURE OF THE "FM" RANGE IS THAT CLUTCH AUTOMATICALLY DISENGAGES PREVENTING WATER BACK PRESSURE FROM DRIVING ENGINE BACKWARDS IF ENGINE INADVERTENTLY STOPS DUE TO SYSTEM FAILURE.

THE "FM" EXTREME DUTY RANGE IS DESIGNED TO SUIT SAE. AND ISO. STANDARD FLYWHEELS, AND ARE MACHINED TO EXCEPT MOST UNIVERSAL AND FLEXIBLE COUPLINGS.

MOUNTINGS TO SUIT

S.A.E.--I.S.O. STANDARD

FLYWHEELS



3000 HP
(2238 kw.)

P.T.O. TO SUIT

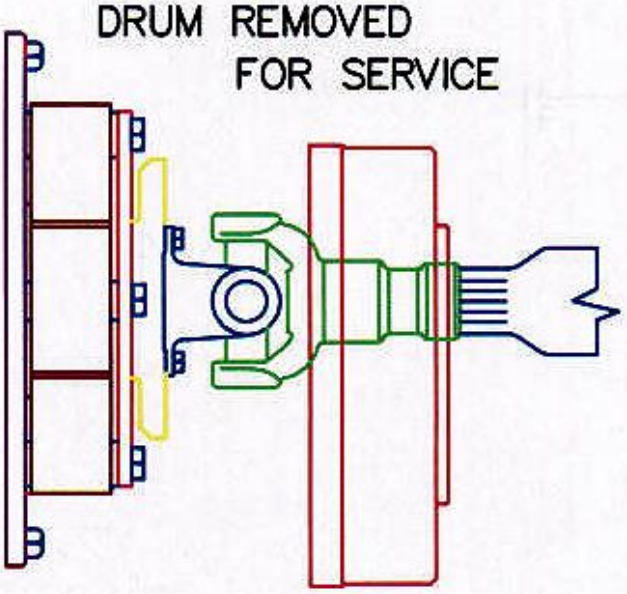
UNIVERSAL JOINT

AND

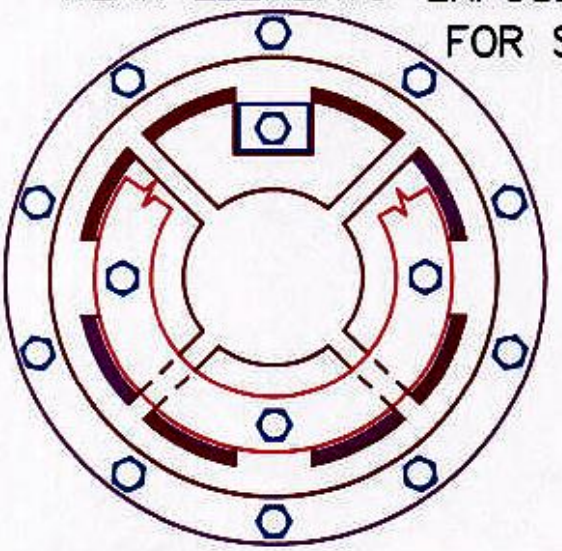
FLEXIBLE COUPLINGS

THE "FM" RANGE OF CENTRIFUGAL CLUTCH IS DESIGNED SO THAT THE DRIVING ELEMENTS CAN BE INSPECTED OR REPLACED BY SIMPLY REMOVING DRUM AND RESTING ON DRIVE SHAFT, WITHOUT MAJOR DISASSEMBLY, THE ENGINE AND CLUTCH CAN THEN BE RUN WITHOUT CLUTCH DRUM FOR TESTING PURPOSES.

DRUM REMOVED
FOR SERVICE



WEAR ELEMENTS EXPOSED
FOR SERVICE



LEHANE CENTRIFUGAL CLUTCHES

EXTREME DUTY SERIES CLUTCHES PHILOSOPHY

BASIC PRINCIPALS

A centrifugal clutch is a very simple and reliable form of power transmission, that relies on natural principals for its operation. Using the natural principal of centrifugal force which is when a body rotates ***(drive shoes)***about any axis other than the one at its centre of mass ***(centre of clutch)***, it exerts an outward radial force called centrifugal force upon the axis or any arm or cord which restrains it from moving in a straight ***(tangential)*** line ***(drum)***.

OPERATION OF A LEHANE CENTRIFUGAL CLUTCH

When the clutch centre and shoes are rotated by the driving motor***(Diesel engine)***, centrifugal force is applied to the Shoes & Lining. As this force is increased by R.P.M increase, up to a point where the force over comes the restraining spring pressure, the shoes then throw out on the drive blocks and contact the drum ***(Which is attached to the electric motor shaft by a flexible coupling)*** that begin to rotate with the clutch driving elements. This stage is referred to as the "Engagement R.P.M" ***(Note there is very little power transmission at this stage).*** As the R.P.M is increased the power transmission capebility increases at the rate of the square of the R.P.M increase.
E.G. 1000 R.P.M = 5kW , 2000 R.P.M = 25kW & 4000 R.P.M = 625kW

ADVANTAGES.

The Lehane FM range of centrifugal clutches are proving to be a simpler and more economical alternative than the traditional overcentre manually operated clutch. The FM range is designed to allow the diesel engine to warm up at idle speed ***(If required)*** then smoothly and automatically as the engine R.P.M is increased to the operating R.P.M this function can be remotely controlled by tele-communication or other electronic means with no clutch engaging mechanism necessary.

COMMISSIONING.

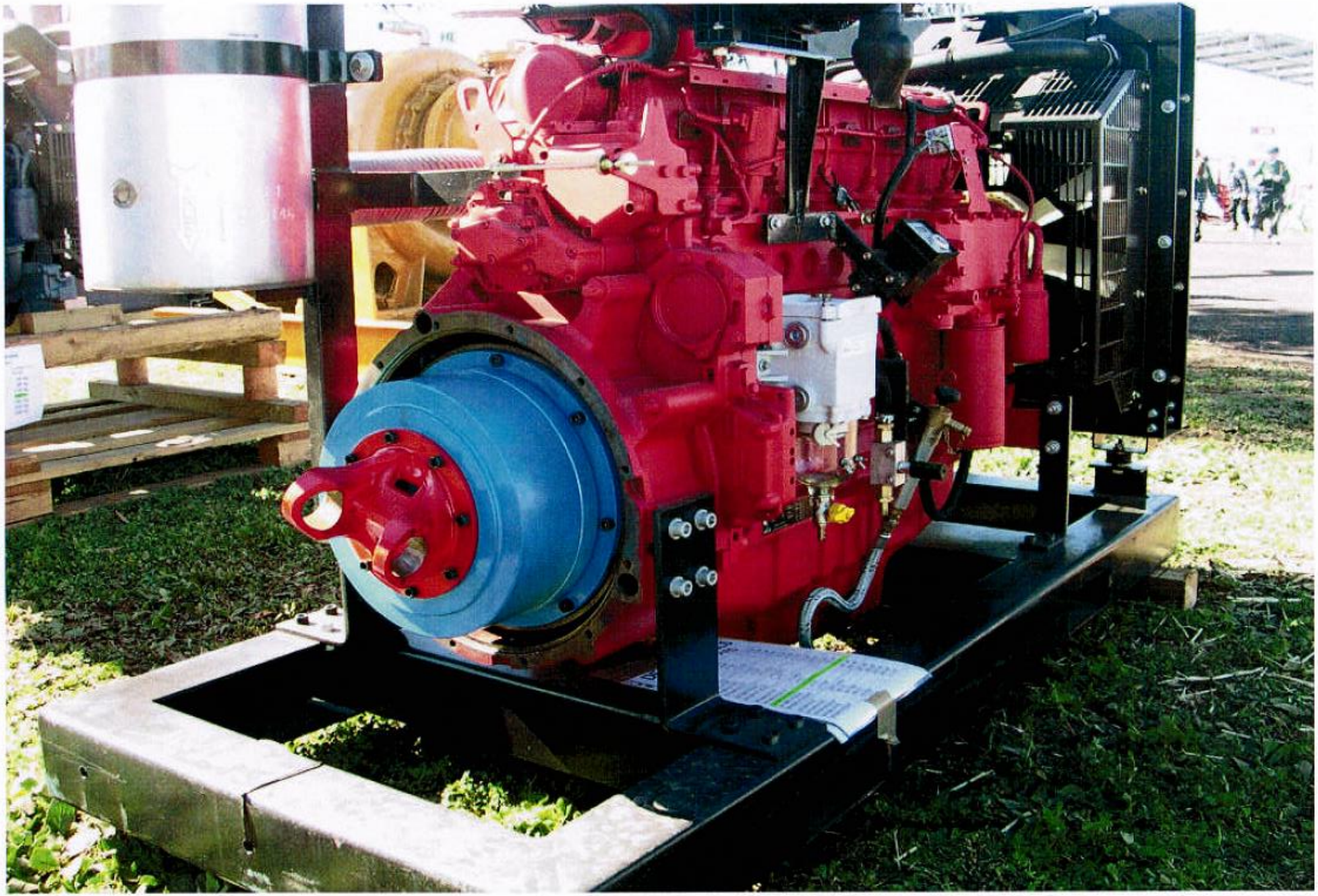
After starting engine, check idle RPM is compatible to preset clutch idle settings i.e. the clutch is not partially engaged and generating heat, this condition left unchecked will cause clutch damage and severely reduce working life and efficiency. Adjust engine RPM to give correct operating conditions.

MAINTENANCE.

The Extreme Duty series is specifically designed for low maintenance with features such as limited travel drive shoes so that with total lining wear, shoes cannot contact drum causing permanent damage. However factors such as operating environment, frequency of starts, acceleration time, nature of load, etc. determine the routine maintenance schedule. After commissioning, an inspection at approximately 100 start cycles would be appropriate. At this inspection remove drum by removing PTO coupling and removing drum retainer socket head bolts. Check and monitor lining wear. Check ball bearing condition ***(usually not necessary to remove at this inspection).*** Retighten all fasteners to standard torque requirements. Re-assemble clutch and drive line components, then test run.

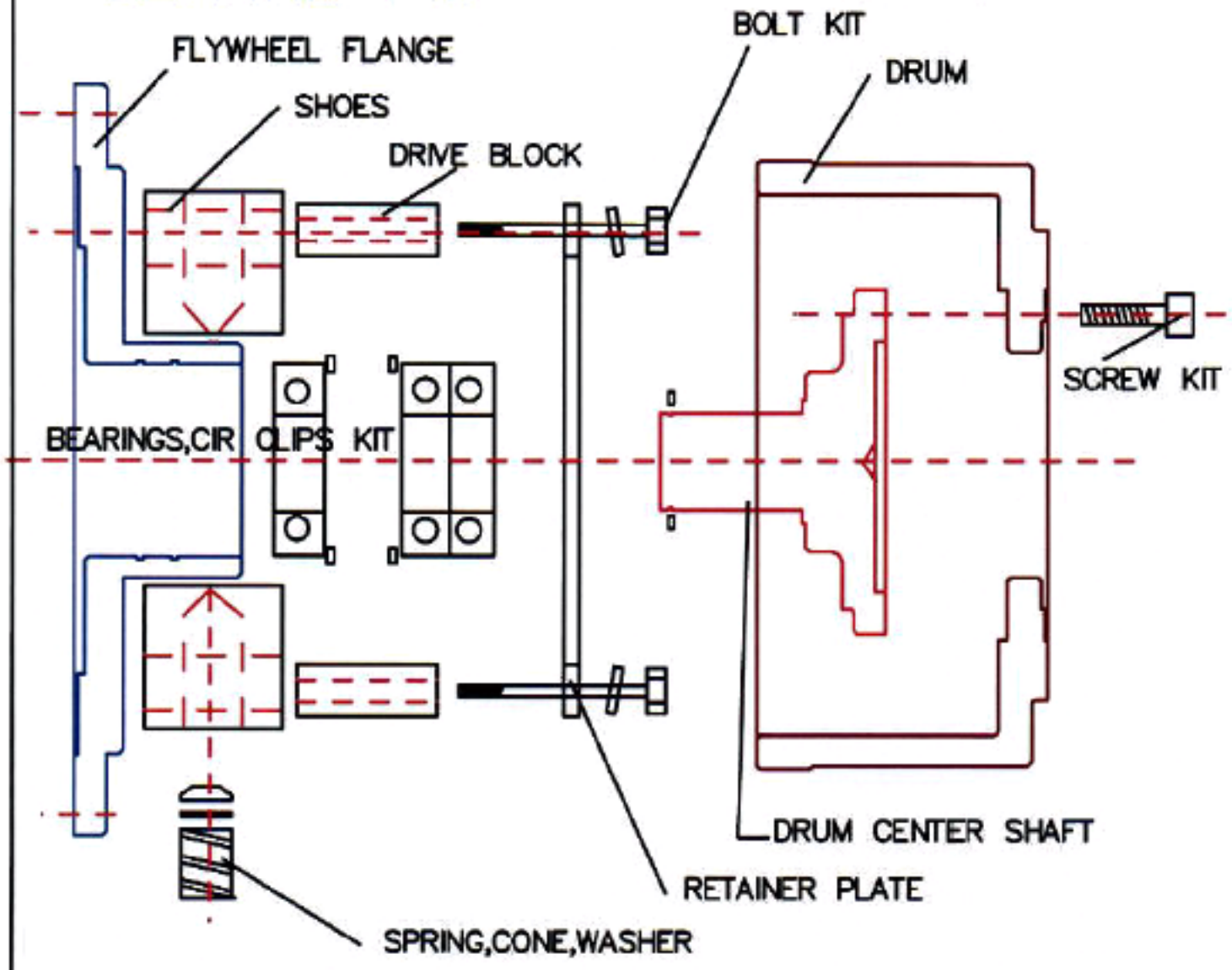
After a satisfactory initial maintenance inspection, with consideration to lining wear and general internal condition a regular inspection schedule can be established with a minimum period of 12 months.

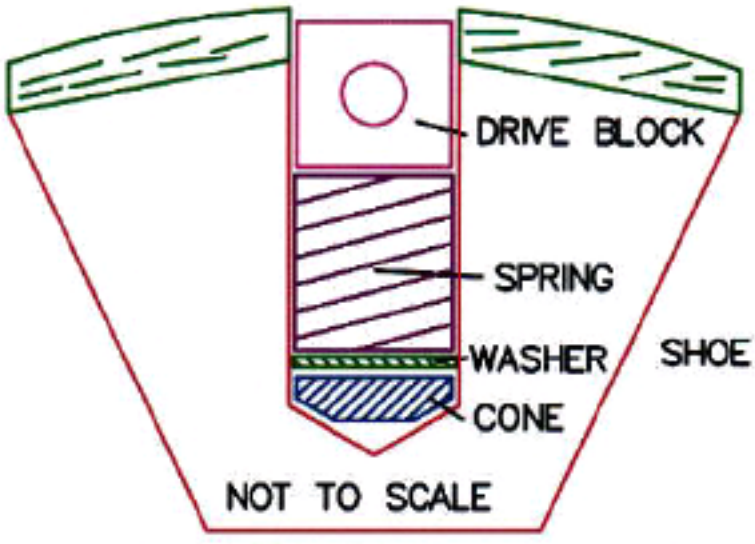
Replacement parts and technical information available from Sydney Australia office. See back page for our 12 month warranty details. Special extended warranties are available.



LEHANE CENTRIFUGAL CLUTCHES

LEHANE FM . PARTS & ASSEMBLY





SHOE ASSEMBLY WITH FRICTION LINING

LEHANE CENTRIFUGAL CLUTCHES

INSTALLATION AND MAINTENANCE INSTRUCTIONS

FOR EXTREME DUTY SERIES CLUTCHES

INSTALLATION.

Before assembling clean and deburr all mating surfaces. After assembling all elements to supplier's direction check that clutch rotates freely and runs true. Also check bolt on couplings etc.that their mounting bolts are correct length and do not interfere with internal clutch mechanism.

COMMISSIONING.

After starting engine, check idle RPM is compatible to preset clutch idle settings IE. the clutch is not partially engaged and generating heat, this condition left unchecked will cause clutch damage and severely reduce working life and efficiency. Adjust engine RPM to give correct operating conditions.

MAINTENANCE.

The Extreme Duty series is specifically designed for low maintenance with features such as limited travel drive shoes so that with total lining wear, shoes cannot contact drum causing permanent damage. However factors such as operating environment, frequency of starts, acceleration time, nature of load, etc. determine the routine maintenance schedule. After commissioning, an inspection at approximately 100 start cycles would be appropriate. At this inspection remove drum by removing PTO coupling and removing drum retainer socket head bolts. Check and monitor lining wear. Check ball bearing condition (usually not necessary to remove at this inspection). Retighten all fasteners to standard torque requirements. Re-assemble clutch and drive line components, then test run.

After a satisfactory initial maintenance inspection, with consideration to lining wear and general internal condition a regular inspection schedule can be established with a minimum period of 12 months.

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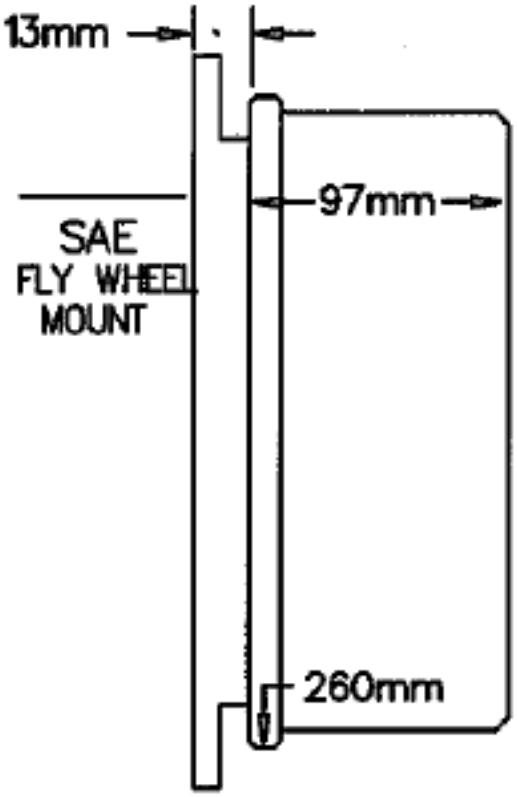
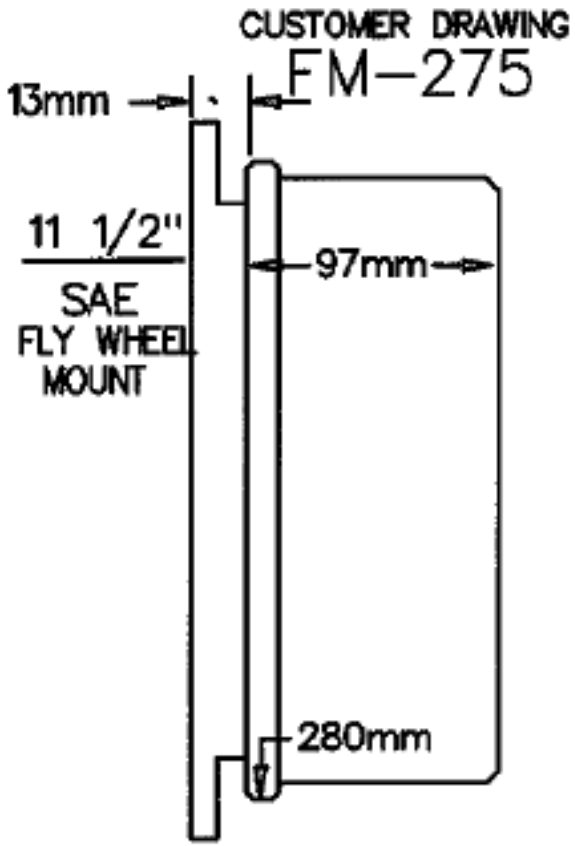
CUSTOMER DRAWING



250 SERIES
HORSEPOWER--(kW.)
SPECIFICATIONS

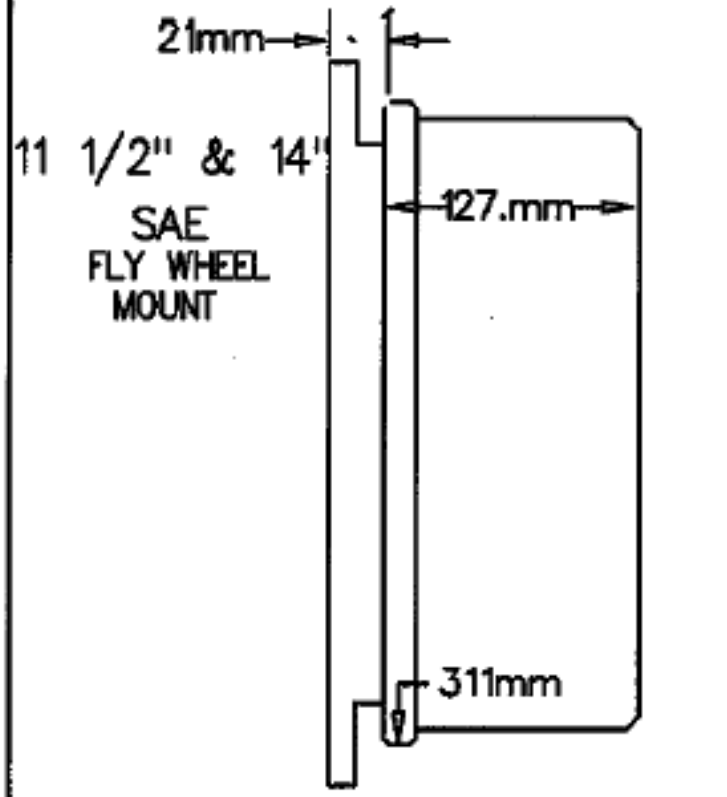
RUN RPM	ENGAGEMENT RPM					
	500		850		1000	
	HP.	kW.	HP.	kW.	HP.	kW.
1000	21	16	8	6	0	0
1100	30	22	15	11	6	5
1200	41	30	24	18	15	11
1300	54	40	36	27	26	19
1400	69	51	50	37	39	29
1500	87	64	66	49	54	40
1600	107	80	85	63	72	54
1700	130	97	106	79	93	69
1800	156	116	131	98	117	87
1900	185	138	159	118	143	107
2000	217	162	190	141	174	129
2200	293	218	263	196	245	182
2400	383	286	351	261	331	247
2500	435	324	401	299	381	284



275 SERIES
HORSEPOWER--(kW.)
SPECIFICATIONS

RUN RPM	ENGAGEMENT RPM					
	500		850		1000	
	HP.	kW.	HP.	kW.	HP.	kW.
1000	31	23	11	8	0	0
1100	44	32	22	16	8	6
1200	59	44	35	26	18	13
1300	78	58	52	39	31	23
1400	99	74	72	53	47	35
1500	125	93	95	71	66	49
1600	154	115	122	91	88	65
1700	187	139	153	114	113	84
1800	224	167	189	141	142	106
1900	266	198	228	170	175	130
2000	312	233	273	204	212	158
2200	421	314	378	281	298	222
2400	551	411	504	376	404	301
2500	625	466	576	430	464	346

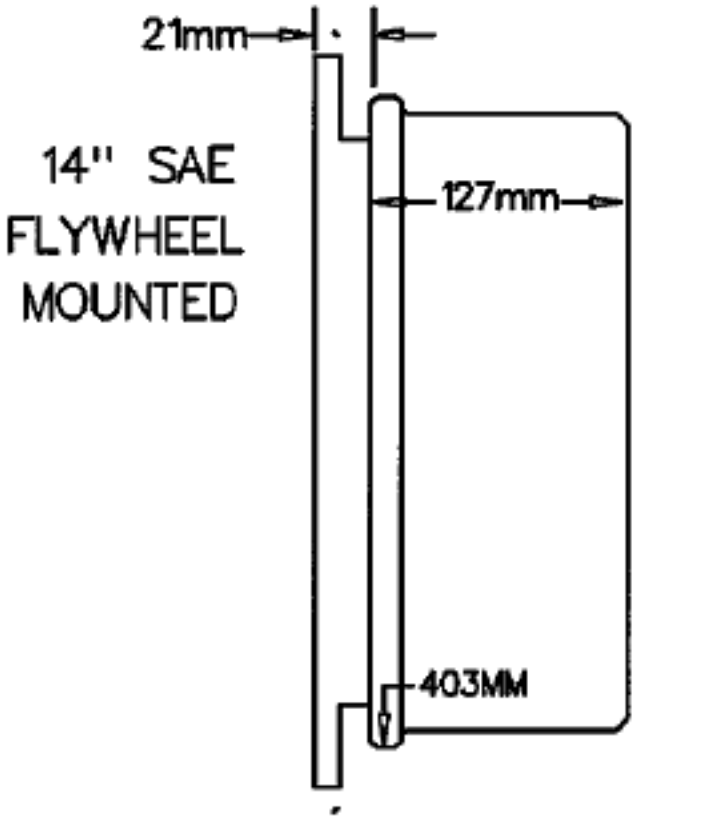
CUSTOMER DRAWING



300 SERIES
HORSEPOWER--(KW.)
SPECIFICATIONS

RUN RPM	ENGAGEMENT RPM					
	500		850		1000	
	HP.	kw.	HP.	kw.	HP.	kw.
1000	55	41	20	15	0	0
1100	78	58	39	29	17	12
1200	106	79	64	47	39	29
1300	139	104	93	69	66	49
1400	178	133	129	96	100	74
1500	223	166	170	127	139	104
1600	275	205	219	163	186	138
1700	334	249	274	205	239	178
1800	401	299	337	252	300	224
1900	476	355	409	305	369	275
2000	559	417	488	364	447	333
2200	753	561	675	504	630	470
2400	986	735	901	672	852	635
2500	1118	834	1030	768	978	730

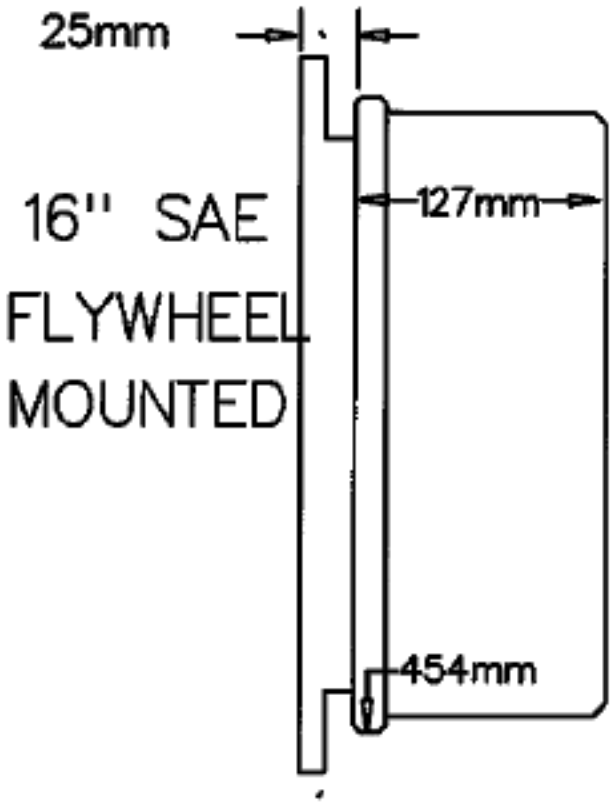
CUSTOMER DRAWING



400 SERIES
HORSEPOWER--(KW.)
SPECIFICATIONS

RUN RPM	ENGAGEMENT RPM					
	500		850		1000	
	HP.	kw.	HP.	kw.	HP.	kw.
1000			60	45	0	0
1100	231	172	117	87	50	37
1200	313	233	188	140	115	86
1300	410	306	275	205	196	146
1400	524	391	379	283	294	219
1500	657	490	502	374	411	306
1600	810	604	644	480	547	408
1700	984	734	808	602	704	525
1800	1180	880	993	741	884	659
1900	1399	1044	1203	897	1087	811
2000	1644	1226	1437	1072	1315	981
2200	2214	1651	1986	1481	1852	1382
2400	2899	2136	2651	1977	2505	1868
2500	3289	2453	3030	2260	2878	2147

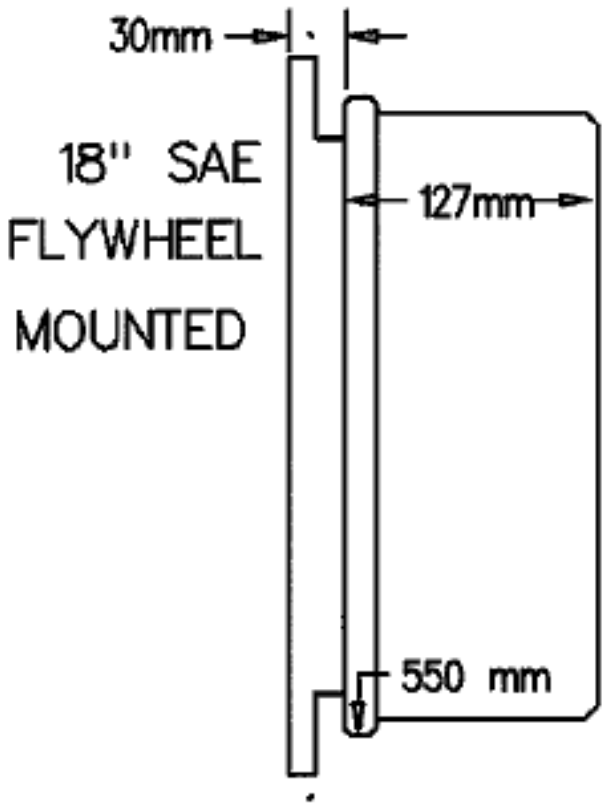
CUSTOMER DRAWING



500 SERIES
HORSEPOWER--(KW.)
SPECIFICATIONS

RUN RPM	ENGAGEMENT RPM					
	500		750		900	
	HP.	kw.	HP.	kw.	HP.	kw.
1000	237	176	138	103	60	44
1100	333	249	225	167	139	103
1200	451	336	332	248	238	178
1300	591	441	463	345	361	269
1400	756	564	618	461	508	379
1500	948	707	800	596	682	509
1600	1168	871	1010	753	885	660
1700	1418	1058	1250	933	1117	833
1800	1701	1269	1523	1136	1382	1031
1900	2018	1505	1830	1365	1681	1254
2000	2370	1768	2173	1621	2016	1504
2200	3192	2381	2974	2219	2802	2090
2400	4180	3118	3943	2941	3755	2801
2500	4741	3537	4494	3353	4299	3207

CUSTOMER DRAWING



550 SERIES
HORSEPOWER--(KW.)
SPECIFICATIONS

RUN RPM	ENGAGEMENT RPM					
	500		750		900	
	HP.	kw.	HP.	kw.	HP.	kw.
1000	433	323	226	168	94	70
1100	510	455	368	274	217	162
1200	825	615	544	406	374	279
1300	1082	807	757	565	566	422
1400	1384	1032	1011	754	797	594
1500	1734	1294	1380	976	1070	793
1600	2137	1594	1652	1232	1387	1034
1700	2595	1935	2045	1525	1751	1306
1800	3221	3221	2491	1858	2167	1616
1900	3691	2753	2993	2233	2635	1966
2000	4336	3253	3554	2651	3160	2358
2200	5839	4355	4864	3629	4392	3276
2400	7646	5704	6448	4810	5885	4390
2500	9673	6470	7350	5483	6737	5026