

164	WITH POWERED MEANS FOR CREATING FLUID FORCE TO ATTRACT VEHICLE TO SURFACE OF TRAVEL	169	.Radiation, force, or waves reflected from external object or surface
116	SURFACE EFFECT VEHICLES (I.E., GROUND EFFECT MACHINES)	170	WITH MEANS RESPONSIVE TO SPEED OF VEHICLE FOR MAINTAINING SPEED AT, OR PREVENTING IT FROM EXCEEDING, A PARTICULAR VALUE
117	.Having propulsion or control means	171	.Including device to signal to operator existence of unusual or unintended speed
118	..Responsive to instability condition	172	.Including device responsive to centrifugal force
119	..Surface contacting control	173	..And means to prevent tampering or unauthorized use
120	..Integrated with working fluid	174	..Having electrical switch
121	...With plural cushions	175	.Including fluid pressure actuated servomechanism
122	...With dynamic seal or fluid curtain	176	..And electrical quantities comparison means for development of input pressure
123	.Spray deflector	177	..And one or more electrical components for establishing or regulating input pressure
124	.Expansible chamber	178	.Including electrically actuated servomechanism
125	.Fluid bearing or fluid pad	179	..And electrical quantities comparison means for development of electrical input
126	.Rigid side walls	180	SKI- OR SKATE-TYPE VEHICLE FOR IMPARTING MOVEMENT TO A PERSON STANDING THEREON
127	.Flexible skirt	181	.With power means or a portion thereof affixed to or built into the ski or skate
128	..Having outlet for working fluid	182	INCLUDING ONE OR MORE SKI-LIKE OR RUNNER MEMBERS
129	.Dynamic seal or fluid curtain	183	.Member substitutable for wheel type support structure
130	..Recirculating	184	..With propulsion element of endless track type
165	WITH FLUID OR MECHANICAL MEANS TO ACCUMULATE ENERGY (I) DERIVED FROM MOTION OF VEHICLE OR (II) OBTAINED FROM OPERATION OF VEHICLE MOTOR, AND GIVE UP THE ENERGY (1) WHEN NEEDED FOR VEHICLE ACCELERATION OR (2) TO POWER AN AUXILIARY SYSTEM OF THE VEHICLE	185	...Track comprises substitute for or addition to propulsion element of traction wheel type
166	WHEELED INFANT CARRIAGE OR CRIB WITH DRIVEN MEANS FOR RECIPROCATING IT LONGITUDINALLY	186	.With at least one surface-engaging propulsion element
2.1	MOTOR SUPPLIED WITH POWER FROM EXTERNAL SOURCE	187	..Element shuffles along support surface
2.2	.Source comprises or includes energy derived from force of nature (e.g., sun, wind)	188	..Spiral type element
167	WITH MEANS FOR CONTROLLING OPERATION RESPONSIVE TO ELECTROMAGNETIC RADIATION, MAGNETIC FORCE, OR SOUND WAVES RECEIVED FROM SOURCE, OR REFLECTED FROM OBJECT OR SURFACE, LOCATED APART FROM VEHICLE	189	..Plural elements connected to and spaced along the plural throws of a common crankshaft
168	.Having controlling means adapted to interact with stationary means which describes course of vehicle's travel	190	..Endless track type element
		191	...Protruding from member

192	...Plural tracks with interconnected drive or support means	6.48	.Independently operable drive motors
193	...With vertically movable track support located intermediate the forward and rearward extremities of the track	6.5 6.54 6.58	..Electrical .Variable contact .Controlled from rotatably mounted superstructure
194	..Plural discrete elements protruding from a wheel, hub, or shaft	6.6 6.62	..Steering responsive to rotary movement of superstructure .Combined
195	...Each element moves relative to wheel, hub, or shaft	6.64	.Swinging traction frame responsive to differential drive
196	..Element comprises traction wheel	6.66	.Reversing drive to traction element
197	WITH MEANS FOR DETECTING WHEEL SLIP DURING VEHICLE ACCELERATION AND CONTROLLING IT BY REDUCING APPLICATION OF POWER TO WHEEL	6.7	.Endless flexible track
198	PORTABLE CARRIER SUPPORTS MOTOR VEHICLE IN TOTO AND IS PROPELLED THEREBY	7.1 7.2 7.3 7.4 7.5	SPECIAL DRIVING DEVICE .Spiral type element .Reaction jet propulsion .Propeller type .Vehicle mounted winch for pulling vehicle
199	WITH POWERED, GROUND-ENGAGING MEANS FOR PRODUCING, OR ASSISTING IN THE PRODUCTION OF, LATERAL MOVEMENT OF THE VEHICLE (E.G., FOR PARKING)	8.1 8.2	.Stepper ..Step or abutment ascending/desending type vehicle
200	.Comprising rotatably driven auxiliary wheel or endless track	8.3 8.4	..Wheel and stepper type ...Nonsupporting pusher type stepper
201	..Driven by frictional engagement with tire of vehicle traction wheel	8.5	..With alternately lifted supporting base and leg
202	..Driven by auxiliary electric or fluid motor	8.6	..With alternately lifted feet or skid
203	.Comprising reciprocably driven stepper or rotatably driven cam	8.7 9 9.1	..Endless or rotary type .Portable track ..Endless, flexible
204	WITH DEVICE FOR PROGRAMMABLY OPERATING VEHICLE'S STEERABLE WHEELS	9.21 9.22 9.23 9.25	...Track substituted for drive wheel ...Guided by walking attendant ...With attendant station ...Rider straddles vehicle (e.g., motorcycle)
6.2	STEERING BY DRIVING	9.26	...Convertible from wheel type
6.24	.Combined with manual steering	9.28	...Track remains with vehicle
6.26	..Interlocked	9.3	....Wheel or track contacts ground
6.28	...Electrical	9.32	...With auxiliary obstacle surmounting means
6.3	...Fluid	9.34	...With ground wheel
6.32	...Lever and/or linkage	9.36	...Opposite and laterally spaced
6.34	....With controller cam	9.38	....Steering
6.36	....Lost motion type	9.4	...With hitch
6.38	....Geared	9.42	...Combined
6.4	....With flexible and/or yieldable link	9.44	...With track-related steering means
6.44	.Auxiliary steering motor		

9.46	....Pivoted track frame	24.09	..With interaxle differential
9.48	...Laterally extendable track	24.1	..With drive interrupt means to either tandem drive wheel
9.5	...Track support mounted for vertical movement	24.11	..Driven tandem wheels
9.52	....Adjustable	24.12	...One serially driven by other
9.54	....With spring	24.13	..Spring rocker beam
9.56	.....Longitudinally extending coil spring	205	.With mechanism of occupant-powered type for developing torque for supplementing, alternating with, or replacing torque of motor
9.58	.....Leaf or torsion spring	206	..And means for controlling motor in response to either operation of occupant powered mechanism or vehicular movement resulting therefrom
9.6	.....Transversely extending	207	..Including member utilized in common by occupant-powered mechanism and by motor for transmitting torque output of each to wheel
9.62	...Toothed wheel drive	208	.Collapsible or knockdown for storage or transport
9.64	...Belt or chain driven	209	.With means for changing number of supporting wheels, or for adjusting relative location thereof
10	..Annular	210	.Having only three wheels
11	MOTOR-CARRYING ATTACHMENTS	211	..Including steerable and driven wheel
12	.Driven steering wheel type	212	...All wheels motor driven
13	..Single wheel	213	...Having motor mounted to swing with steerable wheel
14.1	VEHICLE TRAINS	214	...Electrical-type motor
14.2	.Motorized trailer	215	..Including two wheels driven and having common axis of rotation
14.3	..All motors supplied from power plant of a single vehicle	216	...Electrical-type motor
14.4	.Drive means between vehicles through coupling	217	...Including endless element for transmitting drive to wheels
14.6	.Tractor drive effort varied by pull exerted by trailer	218	.Having only two wheels
14.7	.Vehicle drive drives other vehicle wheel	219	..Arranged in tandem
14.5	.Overload release	220	...Electrical-type motor
15	ADDITIONAL TRACTION WHEEL	221	...Including rotating element for frictionally engaging and driving a wheel
16	TRACTION WHEEL ATTACHMENTS	222	...And means for steering that wheel
19.1	STEERED BY WALKING ATTENDANT	223	...Including steerable and driven wheel
19.2	.Who steerably controls steerable wheel	224	...Both wheels motor driven
19.3	.Handle movement controls vehicle drive	225	...Having frame element or fender constituting also exhaust or fuel passageway or fuel reservoir
20	WITH ROLLERS		
21	SPECIAL WHEEL BASE		
22	.Five or more wheels		
23	..Driven steering wheel type		
24	...Stub-axle type		
24.01	..Having tandem steerable or translatable wheels or wheel sets		
24.02	..Displaceable wheel shifts or proportions load		
24.03	..Independently rotatable side-by-side dual wheels		
24.04	..With differential housing integrally fixed to vehicle frame		
24.05	..Rocker beam houses drive means		
24.06	..Plural propelling motors		
24.07	...Separate driving motor for each drive wheel		
24.08	..Each wheel positively driven		

226	...Including longitudinally extending shaft for transmitting drive to wheel	240	..Including rotatable shaft extending longitudinally from wheels at one end of vehicle to wheels at other end for transmitting steering force thereto
227	...Including resilient means for mounting driven wheel		
228	...Including resilient means for mounting motor	241	..Including longitudinally extending, endless element for transmitting drive to wheels
229	...With means for cooling motor	242	.Including pump and fluid motor, or generator and electric motor, for driving one or more wheels
230	...With change-speed means between motor and driven wheel	243	..And another means for driving the remaining driven wheels
231	...Including endless element for transmitting drive and means for adjusting tension of element	244	.With means for braking either (1) one or more driven wheels or (2) structure transmitting drive to wheel
36	STEAM TRACTION ENGINES	245	.Including separate mechanical assemblies for transmitting drive to each of two wheels at one end of vehicle
37	.Driven steering wheel type	246	..And assemblies for each of two wheels at other end, also
38	..Four wheels driven	247	.With manually operated means for disengaging drive to one or more, but fewer than all, of the four wheels
39	.With boiler leveler	248	.With differential means for driving two wheel sets at dissimilar speeds
40	.Spring mounted on axle	249	..And means for locking out the differential means
232	WITH MEANS FOR (1) PROTECTING MOTOR FROM IMPACT OF COLLISION, (2) UTILIZING MASS OF MOTOR TO ABSORB FORCE THEREOF, OR (3) PROTECTING OCCUPANT REGION OF VEHICLE FROM IMPACT-INDUCED SHIFTING OF MOTOR	250	...Manually operated type of lockout means
41	WITH LEVELING DEVICE	251	.Including longitudinally extending, endless element for transmitting drive to wheels
233	HAVING FOUR WHEELS DRIVEN	252	HAVING AT LEAST ONE WHEEL BOTH DRIVEN AND STEERABLE
234	.With means for steering all driven wheels	253	.Steerable wheel has exclusive axis of pivot (i.e., stub-axle type)
235	..Comprising articulated frame and means for pivoting one portion of frame relative to other portion about vertical axis located centrally of vehicle	254	..Including flexible, axially rotatable means having one portion fixed to vehicle and another portion pivotable with wheel for transmitting drive thereto
236	..In a path of travel other than that produced by turning the front wheels and the rear wheels substantially equally and oppositely	255	...Pivotable portion of means has additional structure of gearlike nature in driving engagement with corresponding structure on wheel
237	..Comprising swingable, plural-wheel-carrying axles on individual, vertical axes of pivot		
238	..At least one axle being offset from its pivotable axis		
239	...Including longitudinally extending, endless element for transmitting drive to wheels		

256	...Means comprises rotatable shaft containing plural universal joints	268	WITH BELT OR HARNESS FOR RESTRAINING OCCUPANT, AND MEANS WHEREBY THE BELT OR HARNESS CONTROLS, OR IS CONTROLLED BY, THE FUNCTIONING OF A VEHICLE SYSTEM OR COMPONENT
257	...Having at least one joint located on each side of axis of pivot	269	.System comprises transmission or element thereof
258	...Pivotable portion of means includes ball or socket element of ball-and socket type universal joint	270	.System comprises ignition circuit or starter circuit or element of one or other
259	...Joint includes intermediate ball, floating in groove, for positively engaging ball with socket	271	WITH MEANS FOR PROMOTING SAFETY OF VEHICLE, ITS OCCUPANT OR LOAD, OR AN EXTERNAL OBJECT
260	...Pivotable portion of means includes gear element of intermeshing gear type universal joint	272	.Responsive to absence or inattention of operator, or negatively reactive to attempt to operate vehicle by person not qualified mentally or physically to do so
261	...Joint includes at least one gear element rotatable on axis of pivot and intermeshing with gear element on pivotable portion	273	..Utilizing weight, or lack thereof, of operator on seat or other support to determine presence or absence
262	....Joint also includes gear element on fixed portion engaging gear element on axis of pivot and vertically offset from gear element on pivotable portion	274	.Responsive to engagement of portion of perimeter of vehicle with external object
263	...Having axis of pivot disposed between parallel planes defined by opposite sides of wheel	275	..And causing application of vehicle brake
264	.With driven axle, mounting two or more wheels, swingable about axis of pivot, and motor mounted to swing therewith	276	...Brake comprises or includes element moved or deformed into engagement with ground
265	..Having axle offset longitudinally from axis of pivot	277	...And also interruption of at least one operational system of the vehicle or its motor
266	.With driven axle, mounting two or more wheels, swingable about axis of pivot, and swingable also about a horizontal axis	278	....System comprises clutch
267	.With driven axle, mounting two or more wheels, swingable about axis of pivot, and shaft for transmitting drive coincident with axis	279	..And causing interruption of an electrical system of the vehicle or its motor
		280	..And causing operation of vehicle steering system
		281	.Comprising either movable closure member or fastening device therefor responsive to forward or rearward movement, or variations therein, of vehicle
		282	.Responsive to sensing of acceleration, deceleration, or tilt of vehicle
		283	..And causing interruption of ignition circuit
		284	...And also impeding flow of fuel
		285	..And causing disruption of drive train between motor and wheels

286	.Comprising vehicle system or component responsive either to position of movable closure member or to status of fastening device therefor	292	..Including change-speed gearing, or clutch, mounted in common with motor
287	.By preventing unauthorized or unintended access or use	293	...With member or mechanism for controlling gearing or clutch, and means for minimizing transfer of movement, caused by operation of motor, to member or mechanism
288	..Reponsive to failure of taxicab operator to activate fare meter upon boarding of passenger	294	...With means enabling repositioning of motor and gearing or clutch
289	..Comprising device, mechanism, or system for either repositioning a movable or removable closure member or operating a fastening device therefor	295	...With wheeled auxiliary frame, resiliently joined to body frame, for supporting motor and gearing or clutch
290	.Responsive to weight of cargo load transported by vehicle	296	..Including means on body frame or motor for handling exhaust
53.1	MOTOR AS SOURCE OF POWER FOR OTHER MACHINE	297	..Having motor shaft parallel to rotational axis of driven wheel
53.2	.Other machine is creeper drive on motor vehicle	298	..Including means enabling repositioning of motor
53.3	.Other machine is mounted by three point hitch (i.e., Ford-Ferguson hitch)	299	..Including auxiliary frame for motor and resilient means for connecting auxiliary frame to body frame
53.4	.Hydraulic drive to other machine	300	..Including means of nonsupporting nature for minimizing operation-induced movement of motor
53.5	.Electric drive to other machine	65.1	.Electric
53.6	.Drive to other machine by power take-off (PTO) driven by wheel or axle of motor vehicle	65.21	..Hybrid vehicle (IPC)
53.61	..PTO mounted directly on or engaging drive wheel to rotate therewith	65.22	...Specific vehicle architecture (IPC)
53.62	..PTO constantly driven with wheel selectively driven	65.225	....Series and parallel (IPC)
53.7	.Drive to other machine by power take-off (PTO) at front end of vehicle	65.23	.....Switching type (IPC)
53.8	.Other machine is vehicle accessory	65.235	.....Differential gearing type (IPC)
54.1	POWER	65.24	.....Electrical distribution type (IPC)
54.2	.With spring powered motor	65.245	....Series (IPC)
55	.On lower running gear	65.25	....Parallel (IPC)
56	..Rear axle and body	65.26	.....Motor assist (IPC)
57	...Longitudinal shaft	65.265	...Control of multiple systems specific to hybrid operation
58	..Frame	65.27	...Control of external device in conjunction with specific hybrid function
59	...Pivoted support on axle	65.275	...Control of individual subunit specific to hybrid operation
60	...Electric	65.28	...Control of engine specific to hybrid operation
61	..Pivoted support on axle	65.285	...Control of motor or generator specific to hybrid operation
62	..Rear axle		
63	.Motor moved by axle		
291	.Having specific motor-to-body-frame relationship		

65.29	....Control of battery specific to hybrid operation	69.2	.Hoods
65.31	..With means on vehicle for generating power for the electric motor	69.21	..Pivoted about horizontal axis extending transversely of vehicle (e.g., alligator type or front end pivot)
65.51	..With motor in or moveable with wheel	69.22	..With noise suppression means
65.6	..With gearing between electric motor and drive wheel	69.23	...Noise suppression means prevents hood from vibrating (i.e., anti rattlers)
65.7	...Gearing is a changeable ratio gearing	69.24	..With access openings having moveable or removeable closures
65.8	..With electronic devices (logic gates, semi-conductors, vacuum tubes, etc.) in control circuit	69.25	..Water deflectors
301	.Including traction motor of turbine type driven by fluid product of combustion	69.3	.With means to increase idle speed of internal combustion engine to compensate for accessory load
302	.Including traction motor of kind driven by expansible fluid from source external of motor	69.4	.With fuel supply for internal combustion engine
303	..Gas is product of treatment of a volatile fluid (e.g., gas is steam)	69.5	..Engine uses gaseous fuel
304	...With means to condense gas discharged from motor	69.6	.Vehicle has plural power plants
305	.Including traction motor of kind driven by noncompressible fluid received under pressure from a pump	69.1	.Underpans
306	..Vehicle includes another system operated by same fluid	337	TRANSMISSION MECHANISM
307	..Having variable displacement type motor or pump	338	.Condition responsive (e.g., responsive to speed, load, etc.)
308	..Having separate motor for each driven, surface-engaging member	339	.With temperature control, lubrication or sealing
309	.With means for handling motor exhaust	340	.With laterally movable wheel
310	.With means to generate steam for a propulsion purpose	341	.Wheel drives parallel wheel
68.1	.With means to guide and/or control air for power plant cooling	342	.Tire directly driven
68.2	..With further means to utilize power plant cooling air for other purposes	343	..With particular gear structure
68.3	.With means to guide and/or control combustion air for power plant	344	.Assembly feature
68.4	.Radiators and condensers, mounting	345	.Traction aid
68.6	..With protector for the radiator or condenser	346	.With protective guard or casing
68.5	.Battery mountings and holders	347	.Mechanical movement transmission
		348	.Final drive axle movable
		349	..Rigid axle
		350	...Belt or chain drive
		351	...With tensioning means
		352	...With lateral support between the differential or axle housing and the vehicle frame
		353	...With sprung differential
		354	...And differential support feature
		355	....And final gear drive
		356	...And final gear drive
		357	..Belt or chain drive
		358	..Swinging axle, single pivot
		359	..With sprung differential
		360	...And differential support feature
		361	...And final gear drive

362	...And transverse leaf spring suspension	332	.With tiller-type handle
363	..And final gear drive	333	.Multiple vehicle functions controllable by single device
364	.Variable speed or direction	334	.With adjustable operator engageable control
365	..Plural	335	.With fuel or air throttle control
366	..Belt or chain	336	.With transmission control
367	..Fluid drive	78	.Steering shaft
368	..Friction drive	400	STEERING GEAR
369	..Planetary	401	.Steering by terrestrial guide
370	.With brake	402	.No mechanical connection between steering shaft and steering gear
371	.Final gear drive at each of two parallel wheels	403	..Hydraulic
372	..Planetary	404	.Power assist alarms or disablers
373	..Belt or chain	405	.With alternate emergency power means (e.g., pump, gearing, etc.)
374	.Gear transmission relationship to frame or axle	406	..With fluid backup
375	..Transmission is differential	407	..With electrical backup
376	.Shaft relationship to frame or shaft	408	.Each wheel steerable
377	.Transmission support	409	..Occupant steered
378	..Differential or axle housing	410	...With condition modulated steering
379	..Shaft	411	..Independently controlled steerable wheels
380	...With propeller shaft casing, (e.g., torque tube)	412	..With electric power assist
381	...Vibration damping	413	...With electric power assist to all wheels
382	..Flexible support	414	..With fluid power assist
383	.With particular drive coupling	415	...With electrical control
384	..Relative axial movement	416	..With mechanical power assist
385	..Drive connection to wheel	417	.With fluid power assist
76	COMPENSATING DEVICES	418	..Between articulated wheeled vehicle sections
314	WITH PLURAL FUEL TANKS	419	...Combined with another steering mode
315	MANUALLY ACTUATED CONTROLLING DEVICES	420	...Reciprocating power assist
316	.By other than hand or foot of operator	421	..With condition modulated steering
317	.On mine car vehicle	422	...With electrical control
318	.On delivery-type vehicle	423	...Vehicle speed condition only
319	.With rein means	424	..With swinging axle
320	.With vehicle control extension	425	..Including flexible power transmitting means
321	.With plural control stations	426	..Steering column supported
322	..Side-by-side	427	...Including rack gear means
323	..For single control means	428	..With rack and pinion gearing intermediate steering shaft and power assist
324	..With tool or equipment control	429	..Having rotary working member
325	..Braking controllable by passenger	430	..Having flexible working member
326	.With movable control station or seat position	431	..Steering linkage includes interengaging gear means
327	..Movable cab		
328	...Tilting		
329	..Simultaneously movable seat and control		
330	..Seat on seat portion movable to alternate position		
331	...With tool or equipment control		

- 432 ..With plural working members
- 433 ...Working member movement
traverses vehicle path
- 434 ..Working member movement
traverses vehicle path
- 435 ...Moves separate rod for each
wheel steering arm
- 436 ...Working member part engages
wheel steering arm
- 437 ...Working member part engages
tie rod
- 438 ..Movable working member engages
wheel steering arm
- 439 ..Movable working member is a
moving cylinder
- 440 ..With linkage intermediate
working member and wheel
steering arm
- 441 ..Device to control pressure
(e.g., valve)
- 442 ..Hydraulic circuit
- 443 ..With electric power assist
- 444 ..Specific mechanical feature
- 445 ..Controlling rear wheels
- 446 ..Condition modulated
- 447 ..With mechanical power assist
- 448 ..Swinging axle
- 449 ..Bogie truck having more than
one axle
- 84 **DUST GUARDS**
- 89.1 **BODIES**
- 89.11 ..With passenger compartment
having article receiving or
removing means
- 89.12 ..Tractor and similar vehicle cabs
- 89.13 ..Movable cab or operator's
station
- 89.14 ..Tilting
- 89.15 ...Via power or power enhancing
means
- 89.16 ..Overmotor cab
- 89.17 ..Movable body portion
facilitating engine access
- 89.18 ..Cab portion
- 89.19 ..Overmotor cab
- 89.2 ..With means for handling exhaust
of a motor
- 90 ..Dashboards
- 90.6 ..Footboards and pedal guards
- 311 **FRAME**
- 312 ..With structure adapted to
receive or support a motor,
change-speed gearing, or other
power train element
- 313 **MISCELLANEOUS**

CROSS-REFERENCE ART COLLECTIONS

- 900 **ARGICULTURAL-TYPE TRACTORS**
- 901 **DEVICES FOR TRAVERSING VERTICAL
SURFACES**
- 902 **SHOCK OR VIBRATION ABSORBING OR
TRANSMITTING MEANS BETWEEN
WHEEL SUSPENSION AND MOTOR**
- 903 **AIRSTREAM REACTIVE VEHICLE OR
VEHICLE STRUCTURE**
- 904 **TRACTION DOLLIES FOR AIRCRAFT
(CROSS REFERENCE ART
COLLECTION CREATED IN
COMPANION PROJECT)**
- 905 **AXLES**
- 906 **ADJUSTABLE AXLES**
- 907 **MOTORIZED WHEELCHAIRS**
- 908 **MOTOR VEHICLES WITH SHORT
WHEELBASE**

FOREIGN ART COLLECTIONS

FOR 000 **CLASS-RELATED FOREIGN DOCUMENTS**

Any foreign patents or nonpatent literature from subclasses that have been reclassified have been transferred directly to the FOR Collections listed below. These Collections contain ONLY foreign patents or nonpatent literature. The parenthetical references in the Collection titles refer to the abolished subclasses from which these Collections were derived.

- POWER (180/54.1)**
- ..Electric (180/65.1)
- FOR 100 ..Combined with nonelectric drive
means (180/65.2)
- FOR 101 ...Generating means is driven by
a prime mover (180/65.4)

