

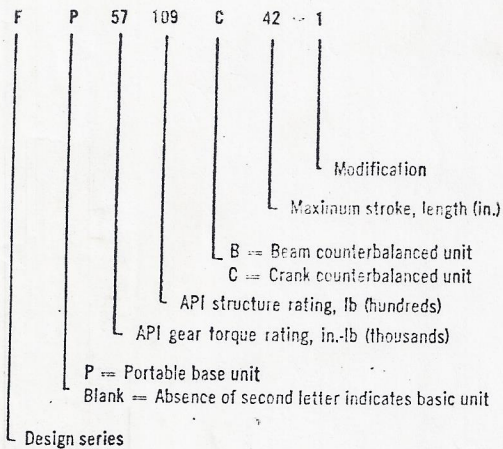
# NATIONAL TYPE F Crank Counterweighted Pumping Unit

NATIONAL Type F Units are available in eight gear reducer sizes with beam and structure sizes from 6700 to 29800 lb. With the Type F line, you can select a properly-rated unit for each load condition and choose from three basic types: standard, portable and high-drive.

Like all NATIONAL Pumping Units, the Type F series conforms to API specifications and is designed with emphasis on durability.

Careful manufacturing of Type F Units assures the utmost in continuous, dependable service under all operating conditions. For example, all welded structural parts are precision jigged for correct alignment of the unit. Major components of every unit are completely assembled in the plant to assure correct fit and reduce your field-assembly time.

## API Nomenclature

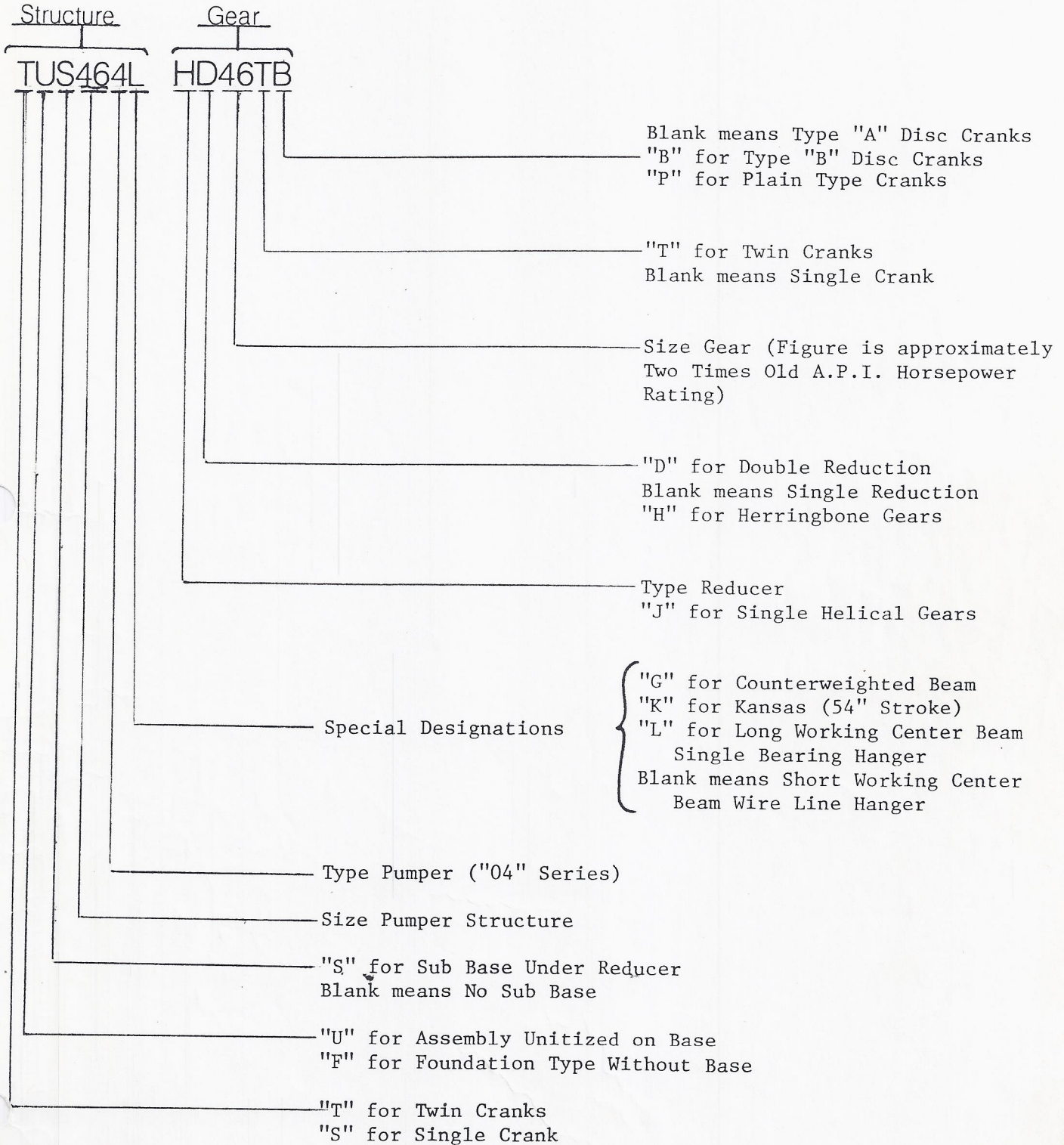


1. Rack-and-pinion type counterweight adjustment means easier field servicing. One man can handle all adjustments easily.
2. Maximum counterbalance effect obtained with four master, eight auxiliary and four insert weights. Many combinations of these weights allow optimum counterbalance.
3. Counterweight stops adjust to provide positive lock of master weights to crank in any position.
4. Three-legged sampson post has wide-spread beam section front legs assuring greater stability. Back leg is detachable square section beam bolted in place with bearing plates. These plates—not bolts—carry the load. Back leg can be detached for a more compact shipping package.
5. Five-year warranty on saddle bearing. Improved mounting promotes longer life. Bearing will be lubricated even if seals are damaged.
6. Five-year warranty on pitman bearing. Improved lubrication, long life.
7. Relief fittings in saddle and pitman bearings assure complete filling.
8. Needle bearings at saddle and pitman definitely reduce friction, resulting in lower power cost or fuel bill.
9. Beam section equalizer with precision-fit pins eliminates shim adjustment.
10. Heavier pitman arms mean a stronger unit.
11. Grease-removable wrist pin means easier field servicing. Self-aligning spherical roller bearings eliminate misalignment problem.
12. Split hub crank-to-crankshaft connection. This is a proved design retained from earlier models.
13. Gear box oil seals replaced by modified labyrinth. Eliminates seal problems.
14. Shorter gear box means more compact unit. This saves installation costs.
15. Shorter sub-base allows shorter belt centers.
16. Less expensive, smaller foundation required.
17. Cranks clear floor and sides of main runners.
18. Rear leg supported on heavy reinforced cross member; removes load from main base runners.
19. Ground level lubrication for easy servicing.
20. Polished rod support provides clearance for dual pumping installations.
21. Arc cable track made of bar stock to insure true shape. Cable easily removed. Side adjusting screws. New cable assembly eliminates twisting.
22. Arc pin installed back of beam end across web. Greater support means elimination of beam twist which occurs in front-mounted designs.
23. Wide flange rolled section beam. Beam stiffeners for greater rigidity.

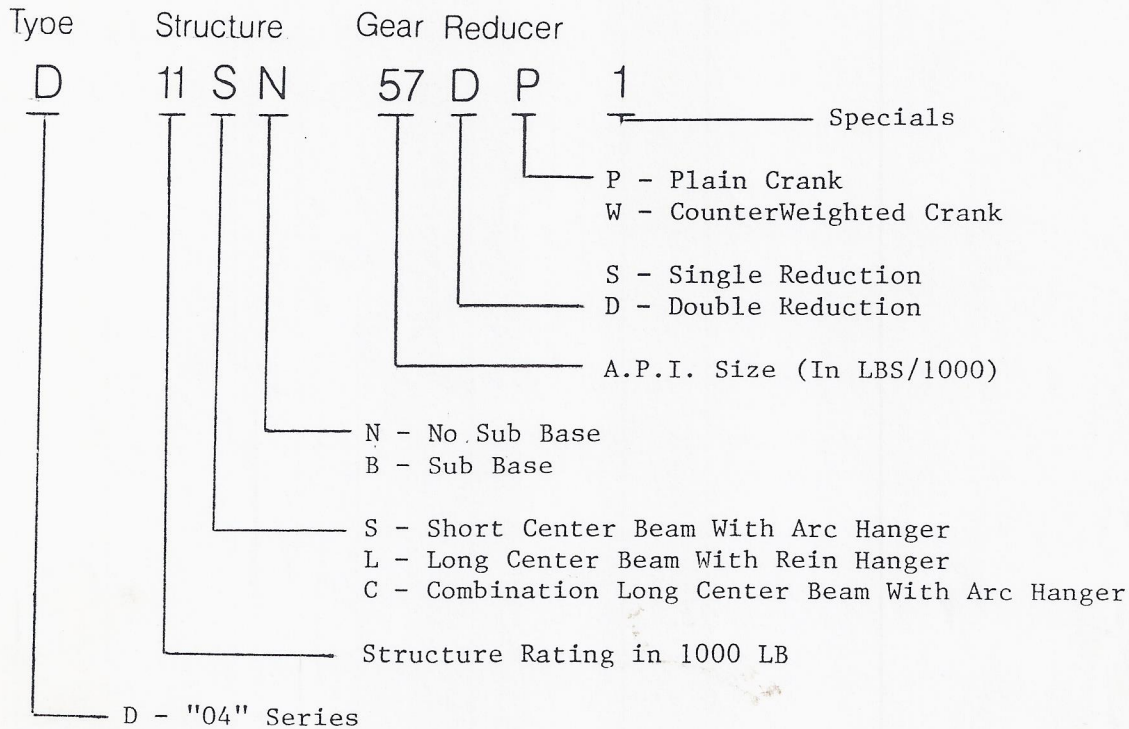
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# PUMPER NOMENCLATURE

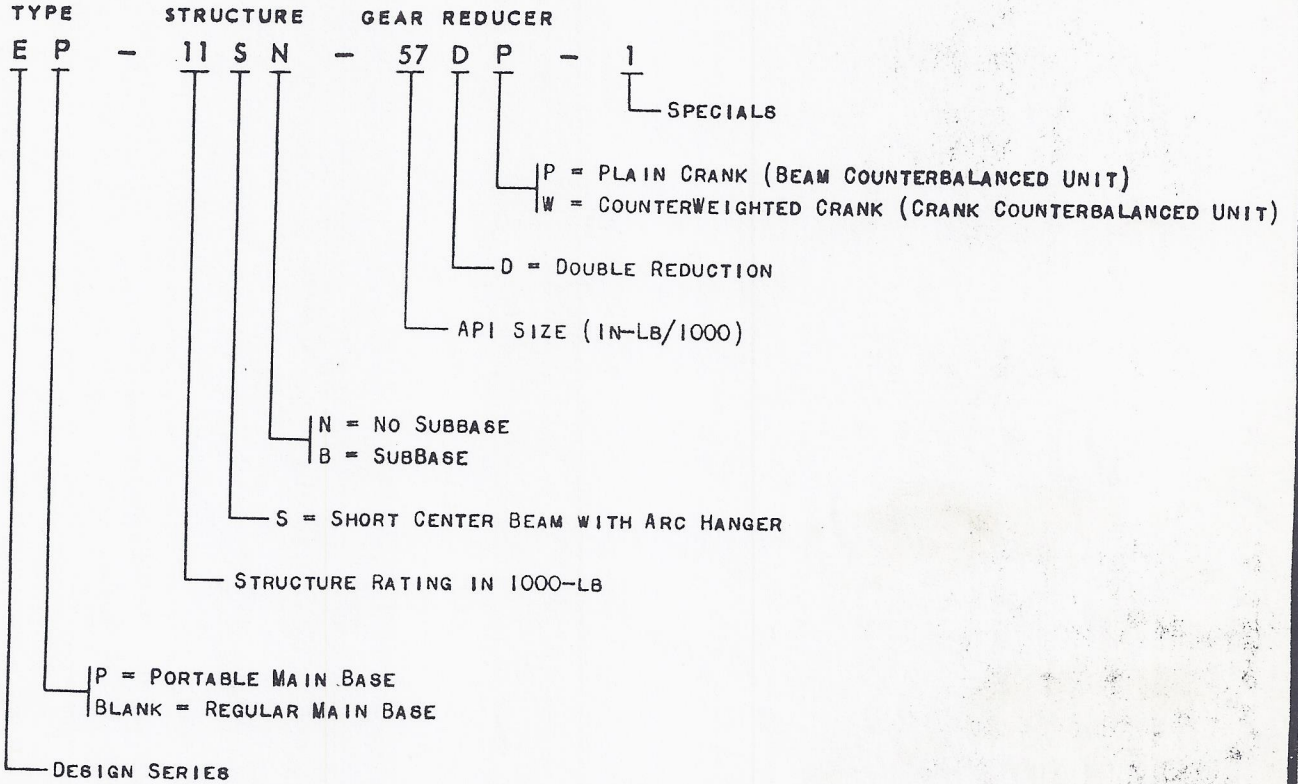


# NATIONAL TYPE "D" PUMPING UNITS



New	Old	New	Old	New	Old
D-3SN-6DP	TU 24G-JD2TP	D-21LN-160DW	TU 654L-HD65T	D-24LB-228DW	TUS904L-HD90T
D-4SN-10DP	TU 44G-HD4TP	D-21CN-160DW		D-24CB-228DW	
D-5SN-16DP	TU 64G-HD6TP	D-21LN-160SW	TU 654L-H65T	D-24LB-228SW	TUS904L-H90T
D-7SN-25DP	TU104G-HD10TP	D-21CN-160SW		D-24CB-228SW	
D-9SN-40DP	TU164G-HD16TP	D-21LB-160DW	TUS654L-HD65T	D-24SB-228DW	
D-9SN-40DW	TU164-HD16TB	D-21CB-160DW		D-24SB-228SW	
D-9SB-40DW	TUS164-HD16TB	D-21LB-160SW	TUS654L-H65T	D-24LN-320DW	
D-11SN-57DP	TU234G-HD23TP	D-21CB-160SW		D-24CN-320DW	
D-11SN-57DW	TU234-HD23TB	D-21SB-160DW		D-24LN-320SW	
D-11SB-57DW	TUS234-HD23TB	D-21SB-160SW		D-24CN-320SW	
D-13SN-80DW	TU304-HD30TB	D-21LN-228DW	TU 654L-HD90T	D-24LB-320DW	
D-13SB-80DW	TUS304-HD30TB	D-21CN-228DW		D-24CB-320DW	
D-13SN-114DW	TU304-HD46TB	D-21LN-228SW	TU 654L-H90T	D-24LB-320SW	
D-13SN-114SW	TU304-H46TB	D-21CN-228SW		D-24CB-320SW	
D-13SB-114DW	TUS304-HD46TB	D-21LB-228DW	TUS654L-HD90T	D-24SB-320DW	
D-13SB-114SW	TUS304-H46TB	D-21CB-228DW		D-24SB-320SW	
D-15SN-114DW	TU464-HD46TB	D-21LB-228SW	TUS654L-H90T	D-29LN-320DW	
D-15SN-114SW	TU464-H46TB	D-21CB-228SW		D-29LN-320SW	
D-15SB-114DW	TUS-HD46TB	D-21SB-228DW		D-29LB-320DW	
D-15SB-114SW	TUS464-H46TB	D-21SB-228SW		D-29LB-320SW	
D-15SB-160SW				D-29SB-320DW	
D-15SB-160DW		D-24LN-228DW	TU 904L-HD90T	D-29SB-320SW	
		D-24CN-228DW		D-32SN-456DW	TU1604-HD160T
		D-24LN-228SW	TU 904L-H90T		
		D-24CN-228SW			

**NATIONAL PUMPING UNITS**  
**NOMENCLATURE**



**API PUMPING UNIT REDUCERS**

SIZE	PEAK TORQUE RATING	
	IN-LB	
6.4	6,400	
10	10,000	
16	16,000	
25	25,000	
40	40,000	
57	57,000	
80	80,000	
114	114,000	
160	160,000	
228	228,000	
320	320,000	
456	456,000	

**NATIONAL PUMPING UNITS**

BEAM COUNTERBALANCED	CRANK COUNTERBALANCED
D-4SN-10DP	-
D-5SN-16DP	-
D-7SN-25DP	-
E-9SN-40DP	E-9SB-40DW
E-11SN-57DP	E-11SB-57DW
-	E-13SB-80DW
-	E-13SB-114DW
-	E-15SB-114DW
-	E-15SB-160DW
-	E-21SB-160DW
-	E-21SB-228DW
-	E-24SB-228DW
-	D-24SB-320DW
-	D-29SB-320DW
-	D-32SB-456DW