

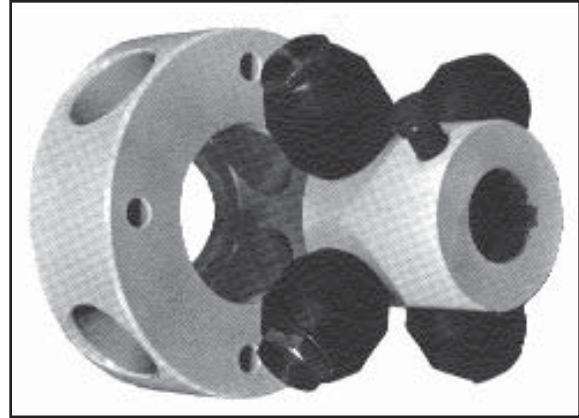
## FEDERAL FLEXIBLE COUPLINGS:

REDUCES NOISE

ABSORBS VIBRATION

PREVENTS ELECTROLYSIS

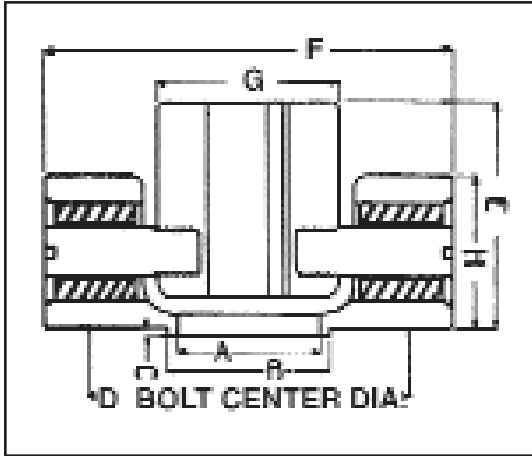
A Federal Flexible Coupling should be used between the propeller shaft and the engine of your boat to absorb the misalignment caused by structural distortion of the hull in a seaway. Changes in the hull in a seaway. Changes in the hull from water absorption and shifting of ballast also tend to cause misalignment between the propeller and motor. Even a small degree of misalignment with rigid couplings will cause shaft whip, excessive vibration, and impose extreme stress on the reverse gear and stuffing box. It is particularly important that flexible couplings be used with any motor that has rubber engine mountings to allow the engine to float freely and to prevent distortion of the shaft. Propeller vibration is substantially dampened by the use of the Federal Flexible Coupling. There is no metal to metal contact. This helps to reduce electrolysis by isolating the iron parts of the engine from the bronze shafting and propeller. Grounding straps are available for boats with bonded electrolytic systems.



The Federal Flexible Coupling consists of a metal hub and flange. The metal hub is accurately bored to receive the rubber bushings, and the face of the flange is machined to match the engine coupling. The neoprene rubber bushings have a bonded inner brass sleeve and the entire bushing is pressed into the flange at the proper compression. Alloy steel spider pins screw through the bushing into the hub and are locked into position. The rubber bushings are ample to absorb propeller vibration and to allow slight angular misalignment. Replacing the propeller half of the engine coupling, the Federal Coupling requires but a fraction of an inch additional space for installation. The Flexible Coupling is not designed to do the work of a universal joint. The engine should be aligned properly before installation in order that the flexibility of the coupling may be used entirely to compensate for misalignments caused by hull distortions and motor movement.

The Federal coupling may be easily installed at any time; no alterations are necessary to either the engine or the propeller shaft. Simply line up the engine, using the existing rigid couplings, then remove the rigid coupling from the propeller shaft and put the Federal flexible coupling on in its place. There need be no change in the position of the propeller.

The Federal Flexible Coupling will absorb both thrust and torsional loads. The pins and rubber bushings are replaceable in case of damage. Couplings with standard bore and keyways are available for most gasoline engines with ratings not exceeding 500 Horsepower, diesel engines to 900 foot pounds torque. All necessary bolts, nuts and set screws are furnished.



Models 31, 32 .....	\$199.40
Models 41, 41A, 43A, 436, 439, 440, 441, 47, 48 .....	\$230.06
Models 41B, 42B, 43B, 434, 435, 44, 46, 438 .....	\$256.99
Models 41H, 42BH, 43H, 63 .....	\$295.79
Models 65, 651, 65B, 66, 61A .....	\$408.45
Models 72E, 721E, 75E .....	\$591.52
#6424 Trunnions .....	ea. \$16.54
#6425 Trunnions .....	ea. \$23.78
#3458 Spider Pins (7/8" across flats) ..	ea. \$ 5.93
#3478 Spider Pins (E Series) .....	ea. \$ 8.24
Grounding straps for bonded systems... ea	\$ 9.29

- ### Important facts about FEDERAL FLEXIBLE COUPLINGS
- Protects transmission thrust bearings and seals from stress and wear due to shaft misalignment.
  - Handles parallel and angular misalignment.
  - No metal to metal contact; prevents shaft rumble from reaching engine.
  - No lubrication or maintenance required.
  - Easily installed; no shaft shortening or change of shaft location.
  - Neoprene Rubber trunnions transmit thrust and torsional loads.
  - Trunnions easily and economically replaced in case of damage.
  - Dampens oscillating shaft vibration in diesel installations.
  - Allows engines on rubber mounts to float free.
  - Engines on rubber mounts move ahead and jackknife under thrust of propeller shaft; FEDERAL flexible couplings absorb this and Engine can be aligned without special tools.

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

## Partial list of Federal Couplings for Current Models of Diesel and Gasoline Engines

ALBIN AD-2	NO. 438	FARYMANN DIESEL Models with 4" dia. flanges Models with 4-1/2" dia. flanges	NO. 440 441	CAPITOL GEARS Model EF & EFH straight drive Model EF & EFH red drive Model 2HED EC-8900 All drives Model 2HE-10,200 Medium duty Model 2HE-10,200 Heavy duty Model 4HE-10,200 Model 2HE-10,700 Model HYC-690	NO. 41 63B 63B 63 65 65 72E 72E
BARR, OSCO PERKINS Diesels 67 4 cyl with Paragon transmissions 4 cyl with Warner transmissions 6 cyl with Warner transmissions 6 cyl with Warner transmissions	41A 43A 41B 43B	GRAY MARINE All Models with Warner transmissions Models with 4" dia. flanges Models with 5" dia. flanges	43A 43B	PARAGON GEARS OXK Straight Drive Model 1XE, 2XE, 3XE, 35XE Straight Drive Model HA, HB, HF Straight drive Model G, P with 4" flange Model P with 5" flange Model P-4, 2-1/2--1, 3-- 1 red Model PL, PM, PC Model PL, PM, PC 2-1/2--1, 3--1, red Model RO, SA Red drives Model RA Red drives Model RB Red drives Model RC Red drives	31 41 41A 41B 41H 42B 42BH 41 44 46 66
CHALLENGER, COMMANDER, CONQUERER, CRUSADER, MERCURISER, OMC, PLEASURE CRAFT, WAUKESHA All models with Warner gears Models with 4" dia flanges Models with 5" flanges Crusader V-drives	43A 43B 43A	LEHMAN POWER with Paragon P gears with Paragon PL gears with Warner gears with Newage gears	41B 42B 43B 65B		
CHRIS CRAFT 283,327 cu. in V-8 Straight drives thru '67 283,327 cu. in V-8 1-1/2-1 Red, drives thru '67 283,327 cu. in V-8 2-1 Red drives thru '67 283,327 cu. in V-8 2 1/2-1 Red drives thru '67 283,327 cu. in V-8 Manuals thru '68, same as '67 227,350 cu. in V-8, '68 with 4" flanges 227,350 cu. in V-8, '68 with 5" flanges 430,431 cu. in V-8 Straight Drives 430,431 cu. in V-8 1-1/2--1 Red drives 430,431 cu. in V-8 2--1 Red drives 430,431 cu. in V-8 2--1/2 Red drives 430,431 cu. in V-8 3--1 Red drives 427 cu in V-8 thru '67 same as 430 cu. in 427 cu. in V-8 '68--all drives	41 44 46 46 41A 41B 46A 46 66 66 66 41B	PALMER AND INTERNATIONAL HARVESTER Models with Paragon (see Paragon) All models with Warner transmission Models with 4" dia. flanges Models with 5" dia. flanges	43A 43B		
CHRYSLER All models with Chrysler transmission Str. drive and red All models with Paragon transmissions Straight Drives 1-1/2 -- 1 red drives 2 -- 1 red drives 2-1/2 -- 1 red drives 3 -- 1 red drives All models with Warner transmissions Models with 4" dia. flanges Models with 5" dia. flanges	61A 41 46 46 46 43A 43B	PATHFINDER All models	43A		
FLAGSHIP All models with Paragon transmission 67 All models with Capital transmissions Straight drives Reduction drives All models with Warner transmissions Models with 4" dia. flanges Models with 5" dia. flanges	41A 41 63B 43A 43B	SABB 20 H.P. Straight Drive 10 H.P. Reduction Drive	436 435	WARNER GEARS & V-DRIVES Models with 4" dia. flanges Models with 5" dia. flanges Models with 5" dia. flanges 1-2 -- 1,3 -- 1 red Models with 5-3/4" dia. flanges	43A 43B 43H 65
		UNIVERSAL Model UJ, Atomic 2, 4 Model UJR Models with Hurth or Warner Trans..	32 41 43A	HURTH GEARS Models HBW -- 100, 200 (all 4 bolt Models -- HBW 360, 400	43A 43B
		VOLVO-PENTA Model MD-1, MB-10A, 1 cylinder Model MD-2, 3, 4 2-3-4 2F-50-A & TMD-404	439 434 43B	GENERAL MOTORS Diesel Model 6-71 with Allison transmission All models with Warner transmissions Models with 4" dia. flanges Models with 5" dia. flanges	72E 43A 43B
		WESTERBEKE 4-60, 91, 107 Manual straight drive 4-60, 91, 107 Manual red drive Models with Paragon P trans 4" Models with Paragon P trans 5" Models with Paragon PL, Pm trans Models with Warner trans. 4" Models with Paragon Navy trans. Models with Sailor trans.	31 41 41A 41B 42B 43A 63 41	DIESELS with Capitol Gears Model 2HE - 10,200 Medium duty Model 2HE - 10,200 Heavy duty Model 2HE - 10,700 or HYC-6900 Model 2HE - 12,400	63 65 72E 75E
		YANMAR DIESEL All except 30M Model 30M, 4JH, KBW20 Model 4LH	47 48 43K	DIESELS with Twin Disc Gears Model MG-502 Model 61, MG-506, 507 with 5-3/4" couplings Model MG-50-6, 507, 508, 509 with 7-1/4" couplings	63 651 721E

Note: No. 651 same as No. 65 but with 5/8" bolts. No. 721E same as No. 72E but with 3/4" bolts. Blanks available for foreign transmissions and metric bores. Metric bores without keyways available in models with metric dimensions.